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MISCELLANEOUS DOCUMENTS

OF THE

HOUSE OF REPRESENTATIVES

FOR THE

SECOND SESSION OF THE FIFTY-SECOND CONGRESS.

1892-'93.

IN THIRTY VOLUMES.

WASHINGTON:
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52D CONGRESS, 2d Session. } HOUSE OF REPRESENTATIVES. { MIS. DOC. No. 108.

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ON

COMMERCE, MANUFACTURES, ETC.

No. 144.—SEPTEMBER, 1892.

TRADE AND INDUSTRIES OF GHENT.

REPORT BY CONSUL OSBORNE.

COTTON-SPINNING.

The year 1891 has not been as favorable as the previous one for this important industry, which is always influenced more or less by the prices of the raw material. The fluctuations for the year may be seen by the following quotations for "middling American" per pound:

	Pence.
Beginning of January	5 5/16
End of July	4 5/8
Beginning of October	4 15/16
End of December	4 3/16

Many of the local spinners made hasty and extensive purchases when the prices were high, and naturally their profits for the year were affected.

FLAX AND TOW SPINNING.

The year has been a prosperous one for this branch. Flax was abundant and cheaper than in 1890. Prices of the flax yarns, as well as of the fine and medium numbers in tow yarns, advanced. However, this was not the case with the coarse varieties of tow yarns, because of an overproduction in their manufacture, the spinners seeking to reduce the store of tow accumulated by the increasing employment of Russian flax, which, as I explained in a previous report, yields far more tow than the Belgian flax.

Exportations of flax yarns were chiefly made to England and Holland. The exportations to France are not considered important enough to warrant any fear for the industry from the new tariff in that country. In 1890 the exportations of Belgian yarns to France were less than 2 per cent of the entire production of Belgium. As for Germany, although no new concessions are made in the recent commercial treaty, the spinners are satisfied with the prospect of twelve years' stability of relations between Belgium and that country.

JUTE-SPINNING.

The harvest of 1890–'91 was the largest on record, being 2,636,000 bales for all Europe. Prices of the raw material were low and steady until summer, when reports began to arrive concerning the next crop, which will only yield about 1,750,000 bales for Europe. Throughout the year the spinners did a good business, but, as the advance in the price of the raw jute declared itself, the prices of their product became less and less remunerative, since the weavers refused to pay the equivalent increase. At the end of the year the price of the raw material was 60 per cent higher than it had been at the beginning of the year. At present writing it is nearly double that of January, 1891. A decrease in production seems the only remedy for the jute industry in its present precarious situation.

LINEN-WEAVING.

For some years this industry has not enjoyed its pristine prosperity. The manufacture of mixed linen has been supplanting that of the pure Flemish linen, once so renowned. The cheapness of the former gives it a great advantage. One variety was put on the local markets and obtained a great sale during the year at 3 ells for 1 franc, or 8⅜ American cents per yard.

By reason of the increasing manufacture of mixed linen made of thread tissue and cotton, and by reason of an overproduction, the prices of the medium and ordinary qualities of the pure linen have fallen particularly low. The future of the industry depends upon the ability of the weavers to find foreign markets.

HORTICULTURE.

The growing importance of this industry is shown by the increase in the number of establishments. In 1889 I estimated the number of nurserymen in Ghent and its environs at 180 and the total number of greenhouses at 1,000. From statistics kindly compiled for me by Mr. C. Petrick, of Ghent, I learn that the number of nurserymen has increased to 250 and that these have, in the aggregate, 2,200 greenhouses, covering a total area of 2,650,000 square feet.

The most important event of the year was the imposition by the new French tariff of a minimum duty of 58 cents per 220 pounds on the entry into France of certain kinds of high-class plants, such as *Azalea indica,* orchids, and palms. This duty is levied on the gross weight of the packages, much to the disgust of the Belgians. Local horticulturists are divided in opinion as to the effect that the duty will have on the trade. Some think that it will bring about a preference for the culture of another class of plants. The general opinion is that it will turn the attention of exporters more than ever to the United States as a market.

I may add that by the new commercial treaty between Belgium and Germany plants are admitted free into the latter country.

MANUFACTURE OF BEET-ROOT SUGAR.

The beet-root crop was unsatisfactory in weight. The amount worked was 138,000 tons (metric), against 154,000 tons in 1890. The cultivators had good reason to complain. However, the beet root was of good quality, and the manufacture was easy and rapid. Good prices have been obtained for the sugar.

CONSTRUCTION OF MACHINERY.

During the year the local machine shops have been well provided with orders. Apprehension is rightly felt concerning future exportations to France, in view of the heavy duties of the new tariff law. The head of one of the leading establishments of Ghent informs me that these duties are absolutely prohibitive.

AGRICULTURE AND CEREALS.

The prolonged and severe winter of 1890–'91 is memorable in Belgium not only for the distress it caused among the poor in cities, but also for its disastrous effect upon agriculture. There was almost continual freezing for three months and little or no snow to protect the crops. The result was that the wheat and rye crops were ruined. To replace them new crops of barley and oats were sown in the spring. There was the same state of affairs in France, Germany, and Holland, where new crops had to be sown as in Belgium.

Distress stared Europe in the face. As early as May France announced a reduction in the duties on the entry of corn and flour. But what was most alarming was the prohibition by Russia of the exportation of her cereals after August 15. This edict made it evident at once that that source of supply for Europe had failed. In this deplorable condition of affairs the United States came to the rescue with the magnificent harvest of 723,000,000 bushels, and such enormous shipments were made to the leading ports that a fall in prices was the result. Extensive purchases were made in Belgium, and the fears inspired by the failure of the European crops were abated by the resulting abundance.

The prices of domestic wheat ranged from $3.57 to $5.02 per 220 pounds. The latter price was reached in April. Domestic rye fluctuated from $2.70 to $5.21 per 220 pounds.

There was never so great a quantity of oats sown in Belgium as during the past year under the circumstances above described. The harvest was plentiful. Exports to the amount of 6,750 tons were made from the port of Ghent alone. The prices varied from $2.32 to $3.57 per 220 pounds.

The harvest of barley sown in the spring was abundant, and the prices remained steadier than for the other cereals.

The importation of fertilizers has for several years been extensive. It is interesting to note the changes. Some years ago Peruvian guano was almost exclusively employed. Subsequently English sulphates of ammonia had the preference. Since 1887 extensive importations of Chilean nitrates of soda have been made. In 1891 Belgium consumed 89,000 tons of this article, of which a large quantity was employed in Flanders.

THE PORT OF GHENT.

The maritime movement by the Terneuzen Canal in 1891 was the greatest in the history of the port. The number of vessels entering was 1,015 (911 steamers and 104 sailing vessels), with a total tonnage of 493,798 tons (Morson), against 952 vessels (819 steamers and 133 sailing vessels), having a total tonnage of 427,351 tons, in 1890. The occasion of the arrival of the thousandth vessel on December 21 was celebrated under communal auspices by the display of flags and the ringing of bells.

There were no American vessels among those arriving, but 4 steamers and 5 sailing vessels came from the United States laden with cotton and wood. The English flag was carried by 70 per cent of the vessels and the German by 13 per cent. The majority of the vessels brought and carried away a mixed cargo.

The importations for the year amounted to 528,533 tons (metric), being an increase of 15 per cent over 1890. The exportations amounted to 270,043 tons, a decrease of 6 per cent from the previous year.

The entry of 117 vessels exclusively laden with English coal, an increase of more than 50 per cent over the number for 1890, demonstrates that Ghent is becoming an important market for English coal. It would be very gratifying if our American coal could be introduced here. Making due allowance for freight, I believe it to be entirely practicable. Throughout the past winter I have been compelled to pay $6.75 a ton (metric) for anthracite and $4.82 a ton for bituminous kitchen coal, both inferior in quality to the products of Pennsylvania mines.

Notwithstanding the increasing importance of the port of Ghent, there are some things that show a deplorable lack of enterprise, chief of which I may mention the failure to construct a larger lock at the entrance of the Terneuzen Canal, which would permit the safe entrance in the canal and up to Ghent of vessels drawing as much as 24 feet, instead of only 17½ feet as at present; secondly, the failure to complete the dry docks at this port. The local chamber of commerce, which has been demanding these improvements for some time, throws the entire responsibility for the delay upon the Central Government.

Table showing the number and tonnage of vessels entering the port of Ghent during the year 1891.

Month.	Sailing vessels.		Steamers.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
January	....	....	57	29,278	57	29,278
February	5	600	66	31,193	71	31,793
March	6	1,682	82	41,128	88	42,810
April	15	2,670	66	32,872	81	35,542
May	16	5,677	70	33,650	86	39,327
June	10	3,050	80	43,602	90	46,652
July	7	2,360	77	43,215	84	45,575
August	12	4,518	84	42,524	96	47,042
September	12	3,428	74	36,861	86	40,289
October	10	1,857	93	46,261	103	48,018
November	8	1,878	90	45,569	98	47,447
December	3	497	72	39,428	75	39,925
Total	104	28,217	911	465,581	1,015	493,798

EXPORTS TO THE UNITED STATES.

The value of the exports from the district to the United States for the year 1891 was $1,260,199.02. Although this was somewhat less than for the previous year, there was a notable increase in the shipments of the majority of articles. I will consider the leading items.

Paper stock.—This item, comprising rags, waste, cuttings, etc., has in past years constituted more than one-half the valuation of the exports, but has been decreasing for the last few years. The value for the year was $571,899.26, being no less than $93,607.99 below the figure for 1890. As I have previously reported, I believe that the old rags imported into the United States from Ghent should be subjected to a compulsory and thorough disinfection. At present absolutely no precautions are taken. A smallpox epidemic now prevailing in Ghent is, with reason, by many attributed to infection in imported old rags. Great quantities are sent from Ghent to the United States, which are collected, previous to being sorted and baled here, in the gutters of France, Belgium, and Germany.

Manufactured goods.—The exports for the year amounted to $160,016.57, the highest figure ever attained and an increase of $13,250.17 over the year 1890. This increase merits our attention. The goods were almost exclusively linen textiles, such as bleached table linen, ticking canvas, crash, and twills woven of pure flax thread and flax waste. By the provisions of our present tariff law manufactures of flax containing more than one hundred threads to the square inch are subject to a duty of 35 per cent ad valorem, which was formerly the duty upon all the above varieties; but such textiles having less than one hundred threads to the square inch must pay a duty of 50 per cent ad valorem. Three-fourths of the exports for 1891 were subject to the increased duty. Nevertheless the amount of the exports has been steadily increasing.

Statement showing increase in amount of exports.

1889	$94,816.82
1890	146,766.40
1891	160,016.57

Table showing the value of declared exports from the consular district of Ghent to the United States during the year ended December 31, 1891.

Articles.	Quarter ended—				Total.
	March 31.	June 30.	September 30.	December 31.	
Albumen			$1,552.00	$927.70	$2,479.70
Baskets				252.89	252.89
Braids, silk	$2,470.80				2,470.80
Chicory	15,079.21	$20,829.78	12,232.13	31,933.83	80,074.95
Flax and tow	31,457.57	44,672.22	1,736.36	23,891.22	101,757.37
Hair, human	2,032.80	1,416.00	2,801.80	1,540.00	7,790.60
Horses, breeding	5,280.00		4,200.00	14,000.00	23,480.00
Lace	20,903.24	16,233.53	6,853.47	23,651.02	67,641.26
Machinery		455.00	1,585.60	6,152.55	8,193.15
Manufactured goods	52,619.42	34,438.90	29,507.00	43,451.25	160,016.57
Marble	990.52	201.55		915.63	2,170.70
Oil paintings	160.00				160.00
Paper stock	128,664.45	146,233.88	129,431.36	167,569.57	571,899.26
Plants	1,268.20	13,776.55	19,605.73	20,588.66	55,239.14
Rabbit skins and hair	38,627.34	50,533.96	49,354.21	15,902.45	154,417.96
Regalia, church			698.20	300.00	998.20
Statuary	315.00	160.00		105.00	580.00
Thread, cotton	4,871.87	6,376.60	2,260.76	326.99	13,836.22
Yarns, jute and tow	2,284.54	1,548.42	2,317.33	452.50	6,602.79
Miscellaneous				200.46	200.46
Total	307,024.96	336,876.39	264,135.95	352,161.72	1,260,199.02

BELGIAN WAGES.

In order to learn the exact explanation of this increase, I have made inquires among the exporters, and I am convinced, by the unanimity of their responses, that it is due to one thing only, *i. e.*, the great disparity of wages between Belgium and the United States, giving Belgian manufacturers an immense advantage. Those with whom I have conversed do not claim any superiority of quality for their goods over American productions. On the contrary, they frankly admit the excellence of our textile fabrics. Commenting on the fact that 75 per cent of all the dress goods consumed in the United States to-day are of American manufacture, a representative Belgian exporter declares that before ten years the United States will export cotton textiles to Belgium.

To understand the condition of labor here one must see the farm laborers in the Belgian flax fields upon their hands and knees from sunrise to sunset, toilsomely grubbing for days and weeks at the weeds among the growing flax. For this work they receive on an average in this consular district exactly 19.3 American cents a day, together with three meals of coarse brown bread and poor beer.

The spinners are slightly better paid than the weavers, since their trade is more difficult. Moreover, wages at Ghent are a trifle higher than in smaller places. From a quantity of statistics which I have compiled for this district I find that the average wages for flax-spinners are 48 cents per day; those for the weavers are 38⅜ cents per day. The daily hours of labor are twelve, including two periods of rest aggregating one hour and a half.

I present the following table of daily wages in the flax industry throughout all its stages, furnished me by a linen manufacture of Courtrai. It comprises, in his judgement, the average wages (or earnings, for in some branches it is common to pay workmen by the piece) paid in East and West Flanders.

Branch of industry.	Average daily wages.	Branch of industry.	Average daily wages.
Flax culture	*0.19\frac{3}{16}$	Weavers	*$0.38⅜
Steeping the flax	.38⅜	Winding the yarn:	
Thrashing the flax	.48	Children	.09⅜
Spinners	.48	Women	.14½
Warping	.48	Bleaching the linen	.48

* With board.

All of the above figures are for male labor, except for winding the yarn.

HANDMADE LACE.

The value of the exports for the year was $67,641.26. Since 1889 there has been a decrease. The lace was all handmade, mostly cotton and linen torchon for trimmings and insertions. There are no factories. The women are employed in making the lace at their homes. The principal exporter informs me that they earn on an average throughout Flanders 14½ cents per day, and work on the lace almost steadily from 6 o'clock in the morning until 9 o'clock at night. If we make a reduction of two hours for repose from this period of fifteen hours, we have thirteen working hours remunerated by 14½ cents, or about 1⅛ American cents per hour. Some women even begin at 5 o'clock in the morning and work until 9 at night. I am also informed that there are many who only earn 11½ cents a day.

CHICORY.

It is gratifying to me to be able to call attention to the manufacture of chicory as an American industry of recent growth. The statistics of exports from this district to the United States for the last three years clearly demonstrate this fact. In 1889 the value of the exports of chicory amounted to $11,666.14 and consisted exclusively of granulated and prepared chicory, grown and manufactured in Belgium. By the tariff law of 1883 both the raw chicory root and the prepared article were alike subject to a specific duty of 2 cents per pound. By the tariff law which went into operation October 6, 1890, the unground chicory root was put upon the free list, but the manufactured chicory is still subject to a duty of 2 cents per pound. The effect was scarcely observable in 1890, for the exports of chicory in that

Typical group of Flemish lace-makers at work before their dwelling.

year, which amounted to $39,440.03, consisted almost entirely of the granulated roots as formerly. It was the same with the beginning of 1891, but as the year advanced a change became apparent. Factories for the manufacture of chicory were established in New York and environs. Heavy shipments of the raw root were made from here. Several manufacturers transferred their plants from the Flanders to the United States. At this writing only one out of many continues to export granulated chicory to the United States. This is the largest chicory establishment in the world, but under American competition it is rapidly going to the wall.

The total value of the chicory exports from this district to the United States for the year 1891 was $80,074.95, of which more than half was represented by the raw root. Instead of being manufactured in Belgium, the manufacture is now carried on in the United States.

PLANTS.

The value of the exports for 1891 was $55,239.14, the highest amount ever reached and an increase of 35 per cent over the previous year. In former years the exports to the United States consisted of rare botanical specimens, while now they are "nursery stock" or "trade plants" of a high class, such as azaleas, palms, and araucarias. The palms for export vary in price here from 50 cents to $10. There is a growing demand for them in the United States for decorative purposes. I attribute the increasing importations to the fact that our nurserymen consider their culture too tedious, it usually requiring several years; but there is no reason why anything that is successfully grown in Ghent can not be just as successfully grown in the United States. No one will dispute that American horticulture has taken great strides towards perfection, and its exposition at Chicago next year will make that fact patent to the world.

COST OF LIVING.

It is often asserted that the purchasing power of an equal amount of money is greater in Belgium than in the United States. As far as concerns the hiring of labor this is true, as may be illustrated by the fact that one can hire a good carpenter at Ghent for 5½ American cents an hour and a domestic servant for $3.86 a month. But when the cost of living among the working classes of the two countries is considered in reference to the disparity in their wages, the fact is generally ignored that a poorer standard of living prevails here than in the United States. To illustrate this: If the American workman would be contented with cheap qualities of potatoes and bread as a regular diet, with an occasional horse steak, instead of having varied meats and vegetables every day, I feel sure that he would find the purchasing power of his dollar to be fully as great as is that of its international equivalent in Belgium, especially as the latter country annually consumes great quantities of our cereals and as it has been found profitable to ship extensive cargoes of horse meat from New York to Ghent to supply the tables of the poorer classes. Inasmuch as beef is more expensive here than in the United States, it is needless for me to say that it is rarely seen on the table of a Ghent workman who earns only 48 cents, or even 58 cents, a day, which is above the average. However, a good horse steak at 6⅛ cents is not beyond his means. Furthermore, if it were the fashion for the American workman to wear wooden shoes they could be made cheaper in the United States than here.

In order to live in comfortable circumstances in Ghent (population 150,000), there are many expenses encountered which counterbalance the cheapness of labor. For instance, if vegetables are cheaper than in the United States, the difference is more than made up by the high prices of meats and the cost of wine or other beverage necessitated as a substitute for the water, which is generally considered unfit to drink. The best canned meats, fish, and fruits are imported from the United States, and are, of course, more expensive. Clothing is cheaper here, but, on the other hand, fuel, both coal and wood, is much more expensive. It is true that house rents are lower than in a corresponding city in the United States, but this fact does not amount to much when it is remembered that the tenant must pay (1) an annual tax of 5 per cent on the amount of his rent, (2) an annual tax on every door and window in his house, and (3) an annual tax of 1 per cent on the value of his furniture, besides other taxes. Moreover, he gets the bare structure utterly devoid of the fixtures usually included in the United States.

All things taken into consideration, I find that the purchasing power of a given sum of money is little, if any, greater in Belgium than in the United States.

JOHN B. OSBORNE,
Consul.

UNITED STATES CONSULATE,
Ghent, April 30, 1892.

HOP CULTURE IN BELGIUM.

REPORT BY CONSUL ROOSEVELT, OF BRUSSELS.

According to the last official census, taken in 1880, there were in Belgium 4,185 hectares devoted to hop-culture, of which 1,803 hectares were in Brabant, Namur, and Hainaut, divided as follows: In Brabant, 1,513 hectares; in Hainaut, 287 hectares; in Namur, 3 hectares.

It is impossible to procure official statistics bearing upon hop-culture in this country, and the following information, obtained through the honorable minister of agriculture and the courtesy of the mayor at Alost, is only approximate. The total weight of the hop crop harvested in the environs of Alost in 1891 was about 20,000 bales of 100 kilograms each. The average yield in that district for the years 1885–'90, was 30,000 bales. There remained in the hands of dealers on January 1, 1892, from 2,500 to 2,700 compressed bales, that is to say, 125 kilograms per bale, while the amount held by growers did not exceed 100 ordinary bales. In preceding years the quantity remaining in the hands of dealers and growers frequently exceeded

15,000 bales. Hops grown in Brabant are principally sold to England as Alost hops. The average market price in 1891 was 1.52 francs per kilogram.

Table showing the imports of hops in 1890.

Countries.	Quantity.	Value.
	Kilograms.	*Francs.*
England	78,815	212,800
France	155,723	420,452
Germany	4,168,898	11,256,025
Holland	327,441	884,091
Luxembourg	30,264	81,713
Russia	40,745	110,011
Other countries	10,339	27,915
Total	4,812,225	12,993.007

Table showing the exports of hops in 1890.

Countries.	Quantity.	Value.
	Kilograms.	*Francs.*
Argentine Republic	15,854	42,806
Australia	14,961	40,395
Chile	18,481	46,837
England	2,534,662	5,974.551
France	1,717,326	3,427.709
Germany	27,162	47,760
Holland	337,901	851,306
Spain	15,423	41,327
Sweden and Norway	12,504	20,882
United States	750,673	1,990,615
Other countries	20,157	46,818
Total	5,505,104	12,531,006

The following are names of hop-growers considered capable judges of local hop crops: Louis Bott, Meerbeke, near Ninove; Felix Goossens, Assche, Brabant; Pierre Voostens, Baerdegera, near Alost; Crunon D. Clercq, Alost; A. & T. Veys frères, Vlamertinghe, near Vaperinghe.

The dealers in hops are as follows: A. Centerick-Van Roye, 68 rue de Birmingham, Brussels; C. Declercq-Billen, 4 Avenue du Boulevard, Brussels; Em. Kühstohs, 106 rue de l'Arbre-Benit, Ixelles; M. Laitern, 12 rue de Sœurs-Noires, Mons, Hainaut.

Mr. Ad. Frentz is director and owner of the Gazette du Brasseur, No. 6 rue Gaucheret, Brussels.

There are no organizations or associations of hop dealers in Brussels. There is a commission appointed by the Government having as its sole object the investigation of means for advancing hop-culture.

It is not anticipated that the hop industry in this country will materially increase. The condition remains normal, notwithstanding efforts which are being made to advance it so as to resist competition of foreign hops.

American hops are very little employed here, native hops naturally being preferred by the brewers, excepting in low-fermentation breweries, which almost exclusively use hops from Bavaria, Bohemia, Würtemburg, and Alsace. These hops are also employed in certain proportion by high-fermentation breweries, especially when not too dear in price, and do not very essentially differ from Belgian hops.

The increase in the consumption is scarcely perceptible, and in good years the yield considerably exceeds the demand, as was exemplified in the years 1885, 1886, and 1887, when large quantities of the yield remained in the hands of speculators.

GEO. W. ROOSEVELT,
Consul.

United States Consulate,
Brussels, May 6, 1892.

AMERICAN PRODUCTS IN SEVILLE.

REPORT BY CONSULAR AGENT SCHMIDT.

The imports at the port of Seville from the United States during the year 1891 were as follows:

Articles.	Quantity.	Tariff duty.	Ports from which received.
	Kilograms.		
Bacon, hams, and canned meats.	236,696	50 pesetas per 100 kilograms...	Liverpool.
Crude petroleum.....................	9,198,085	21 pesetas per 100 kilograms...	New York and Philadelphia.
Cotton-seed oil........................	11,654	23 pesetas per 100 kilograms...	Liverpool.
Fine wood...............................	1,750	55 centimes per 100 kilograms..	Savannah.
Lumber in beams, staves, and boards.	1,675,370	2.75 pesetas per meter...........	Savannah, Pensacola, and Mobile.
Indigo....................................	747	10 pesetas per 100 kilograms...	Liverpool.
Machinery...............................	2,189	8 pesetas per 100 kilograms...	Do.
Printed books..........................	22	38.50 pesetas per 100 kilograms.	Do.
Printed matter.........................	273	........do..............................	Do.
Resin......................................	418	41 centimes per 100 kilograms..	Do.
Salt meat................................	3,789	11.80 pesetas per 100 kilograms.	Do.
Samples of paper.....................	24	Free.....................................	Do.
Samples of wine.......................	6	2 pesetas per liter..................	Do.
Sewing machines......................	2,146	8 pesetas per 100 kilograms.....	Do.
Tallow....................................	7,806	1 peseta per 100 kilograms......	Do.
Typewriters.............................	5	9 pesetas per 100 kilograms.....	Do.
Utensils, clocks, hardware, novelties, etc.	189	24 pesetas per 100 kilograms...	Do.
Oilcloth..................................	13	Free.....................................	Do.
Varnishes................................	828	24 pesetas per 100 kilograms ..	Do.

At first I thought there was some exaggeration in the figures given above from the books of the custom-house of this port, and to satisfy myself I called on the proprietors of one of the principal stores here dealing in bacon, hams, and canned meats—Messrs. Arcona & Co., who do a yearly business of about $500,000—to get their opinion as to whether they thought these figures correct. They informed me that they considered them right.

My doubts in this direction were originated by the information I have that there are some foreign houses—Messrs. ———, of Liverpool, jobbers in colonials, cereals, and staples, and Messrs. ———, of Hamburg, etc., jobbers in American manufactures, hardware, clocks, and novelties—who have their agents here in Spain, where they import American goods, which are declared at the Spanish custom-house as productions of the countries in which these houses are established, to obtain the benefit of lower duties according to the conventional treaties which may exist, between Germany and Spain, for instance; but, on inquiring into the matter, I am informed by the custom-house authorities that the American goods imported here from England are not misrepresented as to country of origin, but declared to be American. This, however, it is claimed, is not the case with the American manufactures imported from Germany, with which nation Spain has tariff treaties in force which favor all German manufactures; consequently the American goods imported via Germany are not included in this memorandum, because they are declared to be of German production.

To post myself on the importance of this portion of American trade, I called on the following houses established here selling utensils, clocks, hardware, novelties, etc., to hear their opinions and get their estimates as to the amount of American manufactures they import yearly through Germany, mostly through Messrs. Markt & Co., which may be considered as an American house, as they have a branch in New York. The portion of American trade done through Germany not included in this list, the manufactures being called German, may be estimated at from $8,000 to $10,000 annually.

Señor José Perez Abascal, doing about $50,000 worth of business annually in utensils, clocks, hardware, novelties, etc., expresses himself as follows:

> I still sell about two hundred American alarm clocks; formerly I used to sell that number of a dozen different models, which have gradually been substituted by the German article, because it can be offered to the trade cheaper and also pays less freight than goods brought from the United States via Liverpool. Table oilcloths and sheet-iron nickel trays used to be good articles, and I would sell a thousand dozen of trays and a thousand pieces of cloth yearly, but now England makes the same article delivered for less money here, because freights are less than from the United States. I still import about $1,000 worth yearly of American novelties, rolled gold-plate buttons, etc., through Hamburg, but this trade has also decreased through French and German imitations.

Señor Angel Martinez, doing a business in the same line amounting to $50,000 yearly, claims to have sold as much as $12,000 yearly of American goods some five or six years ago when he was in the habit of going to New York and would make purchases of $7,000 at one time. He also says that mostly all this line of goods has been copied by France, Germany, and England. But Mr. Martinez believes that trade with the United States stands a good chance of increasing. Their quality is recognized as superior, and as soon as there was a treaty negotiated trade would increase fourfold.

The Bazar de la Union, which does a business of about $30,000 yearly, imports a couple of hundred dollars' worth of utensils, clocks, hardware, novelties, etc., and intends to try American plated ware, which article these parties consider of superior manufacture and very acceptable to the trade.

The Bazar Sevillano, doing about $60,000 worth of business yearly, also thinks American silver plate a good article, and it could be imported if it did not pay more duty than the French. They also say that if there were a treaty importation would doubtless increase, because there are many other articles of manufacture which might be imported.

The Bazar de la Campana, which imports about $600 worth of American firearms, finds it difficult, however, to obtain from the Spanish consul at Hamburg the necessary certificate of origin, without which the governor of this province does not allow the custom-house to enter the arms.

The Bazar Ingles does some $80,000 worth of business yearly in hardware. It imports about $1,500 worth of American hardware through Messrs. Markt & Co., of Hamburg, such as meat-chopping and coffee-grinding machines, other utensils, and American manufactures, etc.

J. SCHMIDT,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Seville, May 14, 1892.

AMERICAN PATENTS IN EUROPE.

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

I have the honor to transmit herewith a translation of the treaty between Austria-Hungary and the German Empire for the mutual protection of inventions, trade-marks, and designs. In transmitting the same I beg to be allowed to offer a few suggestions on the existing patent law and practice in Austria-Hungary, with special reference to inventors and inventions of the United States.

Having of late received a number of letters inquiring into this matter from parties in the United States, I have given the subject some study and found that the extraordinarily small participation of the United States in the import of Austria-Hungary is partly caused by the neglect of our manufacturers to protect their patents, the expense for obtaining which being much smaller than they are led to believe by interested parties. This expense could be greatly reduced, as I have shown, if the proper *modus operandi* was better known to both the attorney and the patent owner.

I think if the widest publicity would be given by the Department to these suggestions it would fill a long-felt want and serve as an answer to many inquiries recently made at this consulate-general.

Patentable in Austria-Hungary are (1) new products of industry, (2) new means of production, (3) new methods of production.

A patent can not be obtained in Austria-Hungary for (1) scientific principles; (2) the preparation of articles of food, beverages, and medicines; (3) inventions the practice of which is against the existing laws.

There is no examination as to the novelty of the invention, the only conditions being that the invention be described (and shown) with sufficient clearness to enable a person skilled in the respective art to carry it into practice, that the first annuity is paid, that the two copies of specification and drawings are exactly alike, and that all the pieces be properly stamped.

The patent is granted on the exclusive risk and responsibility of the applicant. When two or more applications are filed for the same invention, all patents will be granted, but only that granted upon the first application will be valid.

A patent will expire: (1) With the expiration of a foreign patent granted previously for the same invention; (2) if it is found that the specification is not sufficiently clear; (3) if anybody produces legal proof that the invention patented was not new at the time of the application, that is, that it was in use in Austria-Hungary or known through a printed publication, or that the invention had been imported from abroad, and the Austrian patent had not been granted to the rightful owner of the previously obtained foreign patent or to his legal representatives (assignees); (4) if the owner of a patent in force shows that the invention of the later patent is identical with that of his own; (5) if the owner of the patent has not within one year at the latest after the day of issuing of the patent document commenced to work his invention in Austria-Hungary or if he has entirely interrupted this working during any two subsequent years.

It will be seen from the foregoing that in general the Austrian patent law would be protective and acceptable enough to American inventors but for the last-mentioned paragraph on the working of patents. It is to this paragraph that I would call the special attention of Americans, not only with regard to Austria, but to the European countries in general, which, with the exception of Great Britain, all have a clause in their patent laws making the validity of a patent more or less dependent upon the commencement and the continuation of the working in the respective country within specified times. The creation of this rule in the different countries is due to the desire to insure the home industry against the importation of new articles from abroad, the imitation of which is protected by letters patent. This law, wherever it exists, must undoubtedly be considered as an acknowledgement of inventive and industrial inferiority; but it exists, and the American inventor has to reckon with it.

The American inventive genius, fostered by the liberal patent law of the United States, has long been proverbial in Europe, and American inventions are generally sought after and universally employed. In the remotest villages of remote European provinces the traveler will find American implements and American tools; but in many cases only the invention is American, while the article is an imitation produced by enterprising German or other manufacturers, who often not only copy the article, but also take out a patent for it, which, as long as it is not disputed, must be considered as valid by others.

The American inventor or originator does not derive any profit from this trade for the sole reason that he has neglected to patent his article abroad.

If the reasons for such neglect are inquired for, it will be found that there are three important causes which form an impediment and discourage Americans from taking out European patents.

The first and most important of these causes is the before-mentioned law which prescribes that the invention must be worked in the country within a certain short time. This obstruction may, however, as long as such laws exist, in my opinion, be overcome by the American patentee by simply giving a license to one or more good manufacturers in the respective country for working the patent on easy terms, as, for instance, a cheap royalty, such license or contract being restricted to one or two years. In this manner the patent will be worked in full compliance with the requirements of the law, while the patentee, even if the royalty he gets during these two years does not rise above a nominal figure, not only saves the expense of having his patent formally worked in the first and before the third year, a formality costing at least a couple of hundred dollars, but he has the great benefit of his invention becoming known, and his chances increase for advantageously placing his patent. If he has given license but for a limited district, he may, with the exception of France, where the import of patented goods is interdicted, import his article all the same and be safe against imitations, his patent being perfectly valid. The argument that it is difficult to sell a patent in Europe holds good only for the out-and-out sale of a patent for cash before the article has been introduced; but for any practical invention, especially of American origin, a manufacturer may be found in Austria and elsewhere who will work the patent for a reasonable royalty, and who will later on also buy the patent.

The second cause of discouragement is the general want on the part of American inventors of proper connections in Europe for the placing of their patents. But there is no lack of honest, energetic, and reliable people in Europe who are ready and willing to undertake the placing of patented American inventions in the manner indicated, and I think the United States consulates should be in a position to advise American inventors on this head by furnishing the addresses of suitable people.

The third cause which prevents Americans from taking out European patents more generally is closely connected with the foregoing one, and, although the last mentioned, is not the least important one—the excessively high prices charged in America for procuring European patents. The American inventor, as a rule, pays to his attorney at home the average price of $100 for each European patent, with the exception of the Russian patent, which costs much more.

The American inventor does not know, nor is he ever told, what the actual costs of foreign patents are, for these costs, if they are known by the American attorney, are guarded as a strict trade secret.

Now, the actual costs of obtaining an Austro-Hungarian patent, for instance, are the following: First year's annuity, 26.25 florins ($11); cost of stamps, 5 florins ($2), on an average; total cost of patent of fifteen years, including one annuity, $13. For this patent the inventor pays at home $100. It is true that, if the drawings and specifications are not complicated, the preparation of these papers is generally included in the price of $100; but, as in Austria and most other European countries only tracings are required, and as in every case prints are accepted, these costs are nominal. The same disproportions, and in some cases even greater still, between the actual cost of the patent and the prices charged for them in the United States will be found in all other European patents. The actual cost of a German patent, if not rejected, including the first year's annuity, amounts to 50 marks, or $12.50. The actual cost of a Belgian patent, including the first year's annuity, is but $2 altogether. Still, the average price the American inventor pays for these and other patents is $100. The reason for this is that even the majority of American patent solicitors are without proper and reliable European connections. Therefore, most American patent solicitors, when instructed, for instance, to procure an Austrian patent for their client, will transmit the order to a New York firm who make European work their specialty. This firm, however, does not always send the order to Austria direct, but for business and other reasons frequently passes the order to a London or Berlin house, whence at last it is sent to the Vienna solicitor to be filed. Thus it will happen that a case of this kind passes through five hands before it is filed, and, as it is obvious that each of these agencies wants to profit by the transaction, it is not to be wondered at that the American inventor has to pay $100 and sometimes more for a patent, the actual cost of which is $13 or even only $2.

Having gone to this expense and at last obtained the foreign patent, the patentee is informed that before the expiration of the first year he has not only to pay the second annuity, the costs of which naturally—although perhaps actually very low—increase in proportion to the number of hands it has to pass, but that in order to insure the validity of his patent he must get his invention worked in that country.

As his solicitor at home is, as a rule, not in a position to bring the patentee in connection with the proper persons abroad for placing the patent, a formal working must be established, the average cost of which is again $100. Thus the inventor entering upon the second year of his foreign patent has already paid, with the second annuity, about $250 without knowing how, when, and where to place his patent.

This should be prevented in the interest of the American industry, and could, in my opinion, be simply done by enlightening the American inventors on the subject and by facilitating, by the aid of the consulates, the direct intercourse between these inventors and the proper and responsible parties in Europe, who will procure patents at reasonable prices, and who could afterwards be instrumental towards placing such patents or bringing the owners in correspondence with suitable manufacturers. The law prescribing the working of a patent within a specified time is hard enough for all foreign inventors, but it is absolutely unjust where it requires such working within the first year of the patent, as in Austria.

During the negotiations between Germany and Austria with respect to the annexed treaty an attempt was made by Germany to obtain more liberal conditions for its subjects, but without success.

The term fixed in Germany for working a patent is three years, and even after that, the law says, the patent may be declared void only when it is shown that the patentee has neglected to do what was reasonably necessary for establishing the manufacture of the patented article in Germany, and that he has failed to comply with an eventual public demand for the same.

The United States patent law containing no restrictions whatever as to the working of patents, the Austrian who procures a United States patent enjoys far more privileges than the American owner of an Austrian patent.

JULIUS GOLDSCHMIDT,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Vienna, April 23, 1892.

AUSTRO-GERMAN TREATY OF DECEMBER 6, 1891.

[Inclosure in Consul-General Goldschmidt's report.—Translation.]

ARTICLE 1. The subjects of either one of the contracting parties shall enjoy the same privileges as the own subjects in the territories of the other with regard to the protection of inventions, of designs (inclusive of the "practical-use" designs) and models, of trade and manufacturing marks of firms and individuals.

ART. 2. Equal to subjects in the sense of this treaty are other persons who have their residence or their principal place of business in the territories of one of the contracting parties.

ART. 3. If application is made for obtaining protection for an invention, a design or a model, a trade or manufacturing mark, in the territories of one of the contracting parties, and if the application is also effected within a term of three months in the territories of the other contracting party, then shall (*a*) this later application precede all applications which have been filed in the territories of the other party after the date of the first application; (*b*) the novelty not be denied to the object of the application in the territories of the other party by circumstances arising after the date of the first application.

ART. 4. The term provided in article 3 begins: (*a*) With designs and models, as well as trade and manufacturing marks, at the time at which the first application is effected; (*b*) with inventions, at the time at which the patent has been granted for the first application; (*c*) with objects which are applied for in Germany as practical-use designs, in Austria-Hungary as inventions, at the time of the first application if this takes place in Germany and at the time at which the patent is granted for the first application if this takes place in Austria-Hungary.

The day of the application or of the granting is not counted in the term, as the day of granting is considered that day on which the decision about the definite granting of the patent has been delivered.

ART. 5. The importation of goods manufactured in the territories of the one party into the territories of the other party shall not cause the loss of a protective right granted upon the goods by reason of an invention, a design, or a model in the territories of the latter party.

ART. 6. The registration of a trade or manufacturing mark registered in the territories of the one party can not be refused to the proprietor in the territories of the other party on the grounds that the mark does not correspond to the regulations in force there for the composition and external form of trade-marks.

Those regulations are not counted among the regulations for the composition and external form of trade-marks which forbid in the trade-marks the employment of likenesses of the sovereign of the country or of the members of the family of the sovereign or of State and other public arms.

ART. 7. Trade and manufacturing marks enjoying protection in the territories of the one party as marks of goods of members of a certain industrial corporation, of a certain place or district, are here excluded from the employment as free trade-marks, in so far as the application for these marks has taken place in the territories of the other party before the 1st of October, 1875.

Besides the members of such corporation, place, or district, nobody has a right to claim the protection of these marks.

Trade-marks containing public arms of the territories of the one party are excluded from the use as free trade-marks in the territories of the other party. Besides the person who has the permission to use the arms nobody has a right to claim the protection of these marks.

ART. 8. Each of the contracting parties shall, in so far as this has not been done already, take measures against the sale and offering for sale of such goods which, for the purpose of deception in trade and commerce, are provided with arms of State of the other party or with names or arms of certain places or districts situated in the territories of the other party as indicative of their origin.

ART. 9. Designs and models, as well as trade and manufacturing marks, for which German subjects desire to secure protection in the Austro-Hungarian Monarchy are to be registered as well at the chamber of trade and commerce at Vienna for the kingdoms and countries represented in Parliament, as also at the chamber of trade and commerce at Buda-Pesth for the countries of the Hungarian Crown.

ART. 10. The present treaty enters into force on February 1, 1892, and remains in force until the expiration of six months after notice has been given by one of the contracting parties.

The treaty shall be ratified and the ratification exchanged as soon as possible at Vienna.

FOREIGN TRADE OF CHINA.

REPORT BY MINISTER DENBY, OF PEKING.

The total value of the foreign trade in 1890 was 214,000,000 Haikwan taels,* and in 1891 it was 234,000,000 Haikwan taels, being the highest total ever recorded.

The customs revenue increased 350,129 Haikwan taels in 1891 over that of 1890, being 23,518,021 Haikwan taels. The increase is contributed by imports, exports, coast-trade traffic, and opium. Transit dues have declined, owing to the opening of Shun-King, which enabled goods to reach Se-Chuen without paying transit dues at Hankow and Ichang.

IMPORTS.

The total value of imports in 1891 was 134,003,863 Haikwan taels, as against 127,093,481 Haikwan taels in 1890. Goods carried coastwise are not included, nor are those carried in junks. Importations of American drills show an excess over 1890 of 263,000 pieces, and American sheetings of 807,000 pieces, 2,008,000 of the latter having arrived, being the greatest quantity on record. The yarn trade shows an immense increase. Kerosene oil has risen from 8,256,000 gallons in 1882 to 49,348,000 gallons in 1891.

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* There are various taels in China of varying value. The customs or Haikwan tael is of the highest value. During 1891 its average value was $1.20 in American gold.

In 1891, 39,348,477 gallons of American oil were imported and 10,000,902 gallons of Russian.

EXPORTS.

The total value of exports in 1891 was 100,947,000 Haikwan taels, which is the highest point ever reached, and shows an advance over the figures of 1890 of 13,800,000 Haikwan taels. The three great staples were tea, silk, and cotton. Tea showed an advance of 84,638 piculs* over 1890.

TRANSIT PASSES.

The use of transit passes largely increased. In 1882 the number of inward passes was 91,510; in 1891, 186,779.

TRADE DISTRIBUTION.

The imports and exports of Great Britain were 43,399,934 Haikwan taels; Hongkong, 105,863,620 Haikwan taels; Europe (Russia excepted), 19,280,914 Haikwan taels; Russia, 6,661,237 Haikwan taels by sea and 4,433,807 Haikwan taels by Siberia; Japan, 11,506,070 Haikwan taels; United States, 16,765,382 Haikwan taels.

SHIPPING.

Of vessels entered and cleared in 1891 the representation of the most important countries was as follows:

Country.	Number.	Tons.
United States	113	67,095
Austria	454	457,250
Great Britain	17,718	17,438,995
Germany	2,520	1,911,897
France	172	264,660

CHARLES DENBY,
Minister.

UNITED STATES LEGATION,
Peking, April 2, 1892.

AFFAIRS IN TUXPAN.

REPORT BY CONSUL DRAYTON.

In this report of the second quarter ended June 30, 1892, I have to state that the exports from this point still seem to be declining. The decline has been steadily going on during the last fiscal year.

The exports for the present (June) quarter amounted to $182,382.30, showing a decline of $114,129.14 as compared with the preceding quarter.

Lately business seems to have revived a little, which has induced several vessels from the Gulf coast to renew the lumber trade, which appeared to have been completely lost; but remunerative prices have brought about a change, and they seem to be making regular trips.

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* The picul is equivalent to 133⅓ pounds.

A new line of steamers, called the Mexican International line, English owners, has made its appearance during this quarter, running along the Mexican coast and terminating at Philadelphia. I understand that their freight charges have been reduced so as to induce trade by that line.

I have had several inquiries and applications about the air motor and have written to the manufacturers in Chicago to send one to me as a sample to be erected, as these people need ocular demonstrations to convince them of facts. In all probability numbers of them can be sold.

Exchange continues between 40 and 45 per cent, and is transacted by merchants doing business with New York.

JOHN DRAYTON,
Consul.

UNITED STATES CONSULATE,
Tuxpan, July 12, 1892.

TIN TRADE OF SINGAPORE.

REPORT BY CONSUL WILDMAN.

The quantity of tin exported from the Straits Settlements for the year 1891 was greater than it has been for ten years, and is probably the largest export in the history of the trade. As the Straits Settlements mine half the tin of the world, the following table of exports is worthy of notice:

Year.	Quantity.	
	Piculs.	*Tons.*
1887	462,828	27,549
1888	490,032	29,169
1889	554,747	32,021
1890	537,190	31,976
1891	605,829	36,061

In my report on tin to the Department for 1890 I predicted that the export of tin to the United States from the Straits Settlements would show an increase both in quantity and price for 1891 over that year, owing to the McKinley bill. My prediction has come true. The export to the United States for 1891 was 163,647 piculs (1 picul=133⅓ pounds); for 1890, 118,243 piculs; a gain in quantity of 45,404 piculs and in price from about $32 to $39 per picul. The export figures are according to the colonial trade return, and only represent the so-called direct trade with the United States; but I estimate that a third more in quantity of tin goes to the United States via Hongkong and London, which is set down to the credit of those ports, but which is on its way or is ultimately sold to the United States.

A list of the leading tin-buying countries from the Straits Settlements shows the following shipments:

Countries.	1890.	1891.
	Piculs.	*Piculs.*
United Kingdom	267,238	293,024
Austria	5,295	4,035
France	40,935	45,446
Germany	2,102	2,532
Holland	14,304	18,355
Italy	3,698	6,676
United States	118,243	163,647
Other countries	85,375	72,114

All this great tin trade, which is increasing year by year, is handled by English, German, and Chinese firms, not one American firm or buyer being here or one ounce of tin going in American bottoms.

ROUSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, April 27, 1892.

EGYPTIAN COTTON-CROP REPORT.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

I have the honor to transmit the résumé of crop reports received by the Alexandria General Produce Association relating to the condition of the growing cotton throughout Egypt. This résumé covers the answers received from the different districts during the month of June.

We have at last had during the whole of the month very hot weather, and the cotton plants have profited well by it, especially in the southern provinces, where they have regained the backwardness noted in previous résumés, and now present an appearance almost as vigorous as that of last year at the same period.

The effect of the favorable temperature has been rather less apparent in the northern portion of Lower Egypt. Nevertheless the fields are in good condition, though not so forward as in 1891.

The water up to the present, with the exception of the Fayoom, where there are some complaints, has happily been sufficient, in spite of the low level of the Nile.

As usual, the cotton worms have made their appearance in June. They are reported from nearly all parts of Lower Egypt. They have, however, been destroyed by the heat, and also by the precaution taken by many cultivators of picking off the leaves bearing the eggs and caterpillars. No appreciable damage by them has been reported up to the present. Upper Egypt and the Fayoom still continue free from the attacks of those insects.

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES CONSULATE-GENERAL,
Cairo, July 8, 1892.

COAL MINES OF VANCOUVER ISLAND.

REPORT BY CONSUL MYERS, OF VICTORIA.

One of the principal products of British Columbia is coal. It amounted, in fact, to nearly two-fifths of the value of the entire exports of the province for the years 1888, 1889, 1890, and 1891, to say nothing of the amount consumed at home.

Coal has been found in many parts of the province. In the vicinity of New Westminister and along the Thompson and Skeena rivers veins of lignite exist, bituminous coal is found near Kamloops, and a large body of semianthracite of good quality is being developed at the Crow's Nest, in East Kootenay district. At Graham Island, one of the Queen Charlotte group, local volcanic action has created a cretaceous lignite into a compact and brilliant anthracite. On another part of this island is a fine bituminous coal which partakes of the nature of cannel coal. Several companies of American and Victorian capitalists are interested in the Graham Island mines. The above-named fields are just being developed, and as yet are not of much importance in the products of the province.

It is on Vancouver Island that coal-mining, though comparatively in its infancy, has been brought to a point of development where large profits are realized. The coal fields of this island seem to be of unlimited extent, new discoveries being made every year. The fields now being worked are all on the east coast along the strait of Georgia, but it is thought valuable mines will yet be found in the central portion and on the west coast. A series of explorations by a Seattle syndicate, headed by Gen. Lyman Banks, were made last summer on Quatsenough Sound, near the north end of the island, but coal was not discovered in measures worth working.

DISCOVERY.

Coal was first discovered on the island in 1835. The *Beaver*, the pioneer steamship of the Pacific coast, used coal found in outcroppings along the beach. The first attempt at mining was made in 1851 by the Hudson's Bay Company at Fort Rupert, near the northern end of the island. After futile efforts, these mines were abandoned, owing to the brokenness of the measures and the distance from Victoria, the market of supplies. In 1852, a short time before the discontinuance of Fort Rupert mines, coal was discovered by an Indian, known as "King Cole," on the site of the present city of Nanaimo, and the Hudson's Bay Company began operations there in 1853. At the present time the city of Nanaimo is headquarters for the coal trade of the island.

FIELDS AND QUALITY OF COAL.

There are four large collieries in operation on the island. The Nanaimo, Wellington, and East Wellington collieries are all in what is known as the

Nanaimo coal district, which is estimated to have an area of some 200 square miles. The Union colliery, 60 miles to the north, is the first to be opened in the Comox coal district, which has been estimated to have an area of at least 300 square miles. Experts and coal men generally are of the opinion that this district will exceed that of Nanaimo in point of output.

The veins of coal in these districts generally lie horizontally, and vary in thickness from 2½ to 11 feet. The various mines are in most cases worked by vertical shafts from 200 to 690 feet in depth. The shafts are somewhat deeper than in coal mines in the United States, but are shallow compared to the British mines, where the shafts are often 2,000 feet deep.

The class of coal mined is semibituminous, of the cretaceous age. It is of fine quality and has the appearance of some varieties of bituminous coal. It has higher heating power and bears transportation and exposure better than most of the coals found west of the Rocky Mountains. An analysis of coal taken from two of the principal mines is as follows:

Description.	Nanaimo.	Wellington.
	Per cent.	*Per cent.*
Water	4.6	4
Volatile matter	33.7	32.6
Carbon	54.7	54.6
Ash	7	8.8
Total	100	100
Coke	62.2	60.3

NANAIMO COLLIERY.

This colliery is located at Nanaimo, some 75 miles north of Victoria, and was first owned by the Hudson's Bay Company. Its development was begun in 1863. In 1862 the Hudson's Bay Company sold its interest to a syndicate of British capitalists known as the New Vancouver Coal and Land Company. For several years following, owing to natural "faults" in the subterranean strata and other causes, results were discouraging, so that the output between 1862 and 1883 only amounted to between 20,000 and 90,000 tons per annum. In 1884 the company was reorganized, and the output had risen in 1891 to 527,457 tons.

The company has at present five mines, four of which have been in active operation since 1884. Shaft No. 1, or the "Esplanade," is on the beach at Nanaimo. Shaft No. 3 is 1 mile south, and the Southfield shafts 3 miles further south of No. 3. The Northfield shaft is 4½ miles north of shaft No. 1 and is near Departure Bay.

Shafts Nos. 1 and 3 and the Southfield shafts are all on the same vein, although the quality of coal differs. No. 1 produces an excellent gas coal, and it is estimated will produce 11,000 feet of gas to the ton. The Southfield shafts furnish coal better adapted to steam purposes. The Northfield shaft produces a "Wellington" coal, being somewhat harder than the others. The trend of the veins is almost on a level with the surface, rising to the west and dipping to the east at an angle of 5°.

Shaft No. 1 is run to a depth of 620 feet through a hard conglomerate rock, and is tunneled out under the bay to a distance of over 3,000 yards. A shaft 670 feet deep has been sunk on Protection Island, in Nanaimo harbor, to connect with this mine. From this new shaft the mines will be continued out to sea under the strait of Georgia. In ten years it is thought they will be out 3 or 4 miles under the strait and still making seaward. This mine at present has over 10 miles of drift passages and slopes connected with its foot. The veins of coal in this mine average 7½ feet in thickness.

Shaft No. 3 is about worked out.

The Southfield mine is the greatest producer in the district. One slope is down 800 yards and one shaft 508 feet. The veins average from 6 to 10 feet in thickness.

The Northfield mine has two shafts, and a third will be added shortly, which will about double its output.

The present daily production of the mines is as follows: Shaft No. 1, 600 tons; shaft No. 3, 300 tons; Southfield, 800 tons; Northfield, 500 tons; total, 2,200 tons. Three of the mines are worked on the pillar-and-stall system and one on the long-wall system. All the mines have double shafts for ventilation and are almost totally free from gas.

Most of the property intervening is owned by the company, whose landed mineral estate exceeds 30,000 acres and includes part of the city of Nanaimo, together with Newcastle, Protection, and three or four islands lying adjacent to the coast. This company was the first to introduce the diamond-boring appliances on the Pacific. It has put down altogether 23,000 feet of bore holes.

WELLINGTON COLLIERY.

In 1869, the late Hon. Robert Dunsmuir, of Victoria, discovered croppings of coal at Wellington, 6 miles north of Nanaimo. He sunk a shaft, but missed the seam, subsequently finding it under the roots of a gigantic tree that had been blown down in the dense forest at the present site of Shaft No. 4. The coal discovered proved to be the best yet found on the Pacific coast, and revolutionized the fuel business. Admiral Farquhar, at that time in command of the British North Pacific naval station at Esquimalt, and Capt. Edgarton and Lieut. Diggle, both of the British navy, entered into a partnership with Mr. Dunsmuir in the mine. Its development was pushed, and it became a paying investment from the start. In 1878 Mr. Dunsmuir purchased Admiral Farquhar's and Capt. Edgarton's interests, and in 1883 bought Lieut. Diggle's interest, paying him $750,000 on an original investment of a few thousand dollars. The Wellington colliery is still owned by the Dunsmuir estate.

The colliery is at present being actively worked, there being no diminution in the demand for Wellington coal, and the output is governed only by he facilities for transportation.

The first Wellington mine was a slope, and was worked out in a few years. At present there are four shafts worked from 310 to 375 feet in depth. The rock bored through consists of conglomerates, sandstones, and shales. The coal veins are from 2½ to 10 feet thick, and the coal is harder than that produced at the Nanaimo colliery. The pillar-and-stall and long-wall systems are used in these mines, but modern mining and hauling machinery are being substituted as fast as possible.

The output of the colliery averages 1,450 tons per day. Shaft No. 4 produces 550 tons, and is worked over a considerable area, the height of the seam being 7 feet. Shaft No. 5 produces 450 tons per day, and is worked over an area of 2 miles. Shaft No. 6 produces 450 tons per day, and is being rapidly developed in all directions. In anticipation it is to be the chief shaft of the district. The fourth shaft is being sunk between Departure Bay and Wellington, where there is known to be a large seam of coal.

EAST WELLINGTON COLLIERY.

This colliery is located at East Wellington, 4½ miles north of Nanaimo, and is the property of the East Wellington Coal Company, of San Francisco. The first coal was taken out in 1881. The field is not a large one, but a fine quality of coal is produced, and the future prospects of the company are bright.

The colliery produces some 110 tons a day. The coal veins are from 2 to 5 feet thick. There are two shafts, each about 200 feet deep, in operation. The mines are worked upon a modern basis, and are paying handsomely and supporting a considerable population at that point.

UNION COLLIERY.

The Union Colliery is located about 60 miles northwest of Nanaimo and 11 miles inland from the town of Union, which is on Union Bay, Bayne Sound. Its development began in 1888. A standard-gauge railway connects the mines with the town and transfers the coal to the wharfs.

The colliery is the property of the Union Colliery Company, of which Messrs. Dunsmuir, of Victoria, owns one-half of the stock and Messrs. Leland Stanford, C. P. Huntington, and Charles Crocker, of California, the remaining half.

The Southern Pacific Railway Company has the contract for all the coal the mines can produce. The quality of the coal mined is excellent, and an engineer of one of the largest steamships plying on the Pacific coast has stated that it gave better results than any other used on the coast.

Owing to the location of the veins, the mines are worked by slopes and tunnels, and not by vertical shafts, as in most of those in the Nanaimo district. Slope No. 4 is the principal mine and is in some 450 yards, the incline at the entrance being 1 to 7, which is nowhere exceeded. The coal produced is unexcelled for coking. The seam is 5 to 8 feet thick. The Jeffrey electric coal-mining machine is used to good advantage in this mine, and all other appliances used are the best found on the coast. Slope No. 1 is down 700 yards, contains a 4-foot seam, is worked in the old style of mining, and produces 200 tons a day. No. 1 tunnel and No. 3 slope are new mines. The first is producing 60 tons a day. The total capacity of the colliery at present is 700 tons per day.

DEVELOPMENT.

The development of these collieries for the past ten years, and especially during the last year, has been rapid. The following table shows the total output of each year from 1874 to 1891, inclusive:

Year.	Output.	Year.	Output.
	Tons.		*Tons.*
1874	81,000	1883	213,000
1875	110,000	1884	394,070
1876	139,000	1885	365,000
1877	154,000	1886	326,636
1878	171,000	1887	413,360
1879	241,000	1888	489,300
1880	268,000	1889	579,830
1881	228,000	1890	678,140
1882	282,000	1891	1,029,097

The output of the different collieries for the years 1888–'91 was as follows:

Collieries.	1888.	1889.	1890.	1891.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Nanaimo	258,817	223,870	389,505	527,457
Wellington	198,392	273,383	174,496	345,182
East Wellington	30,092	51,372	44,602	41,666
Union	2,000	31,204	69,537	114,792
Total	489,301	579,830	678,140	1,029,097

The output of the Wellington Colliery for 1890 would have been much larger had not the miners employed therein inaugurated a strike in May, which continued during the entire summer. The Union Colliery shows a remarkable development. The total output of the collieries for 1891 shows an increase over that of 1890 of 350,957 tons.

MARKET AND PRICES.

Soon after coal began to be mined on the island it was found that the best market for it was at San Francisco and other ports in California, and the demand for Vancouver Island coal in that market is now as great as then. The principal competition comes from the Puget Sound mines. The following table (from an authentic commercial source) shows the total amount of coal consumed in California for the years 1888–'91.

Table showing the amount of coal consumed in California in the years 1888–'91.

Sources of supply.	1888.	1889.	1890.	1891.
	Tons.	*Tons.*	*Tons.*	*Tons.*
British Columbia	345,681	417,904	350,388	517,477
Australia	271,612	408,032	153,920	275,490
England and Wales	126,167	32,890	53,374	200,777
Scotland	10,680	12,727	1,490	34,225
United States (Eastern States)	30,118	18,950	32,701	42,237
Puget Sound	568,948	372,514	450,762	393,163
Coos Bay and Mount Diablo (Oregon)	81,194	87,600	74,210	90,684
Japan	13,808	1,340	13,250	20,506
Carmel Bay (Oregon)	.....	.....	.....	1,200
Alaska	.....	.....	.....	150
Total at San Francisco	1,448,208	1,351,957	1,130,095	1,575,909
At lower ports (Wilmington, San Pedro, and San Diego)	211,598	11,805	123,312	160,820
Grand total	1,659,806	1,363,762	1,253,407	1,736,729

In addition to the 517,477 tons from British Columbia there was exported to and delivered at the lower ports from this province 123,534 tons, which amount is included in the 160,820 tons noted as delivered at lower ports in 1891. This makes the total export of coal to California from Vancouver Island 641,011 tons for last year.

By a perusal of the above table it will readily be seen that the island mines are holding their own and even gaining in this principal market, and the mine managers assert that, if it were not for the 75 cents per ton duty prescribed by the United States tariff, they would close every mine in the State of Washington within a short period and completely monopolize the Pacific coast markets. Besides being discriminated against by the tariff, the freight on island coal averages 25 cents more per ton than the Puget Sound article, and it is only the extra fine quality of the island coal that makes a demand for it.

There has been a sharp competition in the California market for several years past, and the provincial inspector of mines, in his report for the past year, thinks the excessive shipments of coal from all countries to that State has disturbed the balance of supply and demand to such an extent that the output of the island collieries for this year (1892) may not greatly exceed that of the past year, and he recommends a treaty of reciprocity in coal between Canada and the United States to remedy this state of affairs.

Besides supplying the California market, Arizona, New Mexico, Oregon, and even the Puget Sound cities use some island coal. The Hawaiian Islands, Mexico, China, and Japan are also consumers on a small scale. The Southern Pacific Railway Company uses island coal in part, as does the Canadian Pacific Railway Company, and also the steamers of the Canadian Pacific Navigation Company. British and American men-of-war have been frequently coaled at the collieries for several years past, and ocean mail steamers and other steam vessels calling for fuel have been supplied. The amount of coal consumed in British Columbia in 1890 was 169,870 tons;

in 1891, 202,697 tons. These amounts include the coal consumed by the collieries.

The following table shows the amount of coal exported and its destination for the fiscal years 1886–'90, as shown by the Dominion reports of trade and navigation for those years:

Countries.	1886.	1887.	1888.	1889.	1890.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
United States	253,889	315,380	333,788	444,930	494,301
Japan		1,500	7,300	1,000	1,800
Hawaiian Islands	2,857		2,240	4,345	2,578
Mexico	500		3,020	2,350	
China		250	3,700		1,855
Great Britain	25				
Siberia	1,400				
Total	258,671	317,130	350,048	452,625	500,564

Island coal sells at San Francisco at from $6 to $9 per ton, according to quality and the cost of transportation. Some grades of island coal sell in southern California for $6.50 and on Puget Sound from $6.50 to $7. The retail price of coal in the cities of Victoria and Vancouver is $7 to $8 per ton. Vessels coaling at Departure Bay and at Nanaimo can purchase it for $3 to $4 per ton and at Union for $2.75 to $3 per ton. At Departure Bay coal is delivered aboard the colliers for outside parties and foreign buyers for $3 per ton. Freights from Departure Bay and Nanaimo to San Francisco and southern California average $2.25 per ton.

TRANSPORTATION.

The New Vancouver Coal Company (Nanaimo Colliery) ships from both Nanaimo and Departure Bay.

R. Dunsmuir & Sons (Wellington Colliery) and the East Wellington Coal Company both ship from Departure Bay.

The Union Colliery Company ships from Union.

Most of the output of the Nanaimo Colliery goes to San Francisco. It is carried there in American bottoms principally. The harbor of Nanaimo is never deserted, and generally three or four vessels may be seen there loading coal. The coal company has over 160,000 tons of shipping under contract, not counting other vessels chartered by outside buyers. Last year a fleet of one hundred and seventy steamers and sailing vessels, with an average carrying capacity of 1,600 tons each, were employed by this company in carrying coal. The employment of American vessels in this trade has caused the port of Nanaimo to rank third in the Dominion of Canada for the amount of American tonnage arriving and departing. The company expects to further increase its fleet by the addition of several large steam colliers, the first of which is expected from Liverpool soon. Its shipping wharfs at Nanaimo have a frontage of 1,070 feet.

The Wellington Colliery has three large shipping wharfs at Departure Bay, at which some of the largest ocean vessels are loaded and dispatched. The British steam colliers *Wellington* and *Costa Rica*, having a carrying capacity of 2,600 and 2,500 tons, respectively, are owned by the Dunsmuirs, and are engaged in carrying coal to San Francisco. A number of American sailing vessels are also in their employ. Outside parties purchasing Wellington coal send their own vessels to load at Departure Bay.

The East Wellington Colliery ships all its coal to San Francisco in American sailing vessels. They are loaded at its wharfs at Departure Bay.

The output of the Union Colliery is transported to California by three steam colliers flying the American flag. They are the *San Pedro*, *San Mateo*, and the *San Benito*, and are owned by the Pacific Improvement Company, of California. These vessels are large and powerful and have a carrying capacity of over 3,000 tons of coal each.

Besides the American and British vessels employed as colliers, a number of Norwegian vessels are also in the trade. The famous American "whaleback" steamer *Charles H. Wetmore* is now carrying coal for the Nanaimo Colliery, and she seems well adapted for the business, owing to the ease of loading and discharging the cargo. At Nanaimo recently 2,500 tons of coal were put aboard of her in twenty-four hours.

The sailing vessels employed have to be towed, as a general rule, from Cape Flattery to Nanaimo and Departure Bay, a distance of about 150 miles, and after being loaded are towed back to Cape Flattery. American tugs do most of this towing.

MINERS AND WAGES.

The several collieries furnish employment to almost 3,200 miners, engineers, longshoremen, etc. The nationalities represented among the miners are English, Scotch, Swedes, Finns, Italians, Belgians, Americans, Chinese, and Japanese.

Table showing the number of employés.

Collieries.	Whites.	Boys.	Chinese.	Japanese.	Total.
Nanaimo	1,331	46	87		1,464
Wellington	824	33	100		957
East Wellington	156	9	23		188
Union	270	15	200	100	585
Total	2,581	103	410	100	3,194

Table showing the wages of the employés.

Collieries.	Whites.	Boys.	Chinese.	Japanese.	Miners' earnings per day.
Nanaimo	$2.50 to $3.50	$1.00 to $2.00	$1.00 to $1.25		$3.00 to $5.00
Wellington	2.50 to 3.50	1.00 to 2.00	1.00 to 1.50		3.00 to 4.50
East Wellington	2.50 to 3.50	1.00 to 2.00	1.00 to 1.50		3.00
Union	2.50 to 3.50	1.00	1.00 to 1.25	$1.00 to $1.25	3.00 to 4.50

In the Nanaimo, Wellington, and East Wellington collieries white men are employed as miners, and the Chinese, together with whites, do the work above ground. At the Union Colliery both Chinese and Japanese are to some extent employed both as miners and above ground.

The miners have an organization known as the "Miners' and Mine Laborers' Protective Union," which has a large membership. The Nanaimo Colliery employs only members of this union. The Wellington and East Wellington collieries employ both union and nonunion men. Eight hours constitute a day's work in all the mines.

After many years of agitation the provincial parliament in 1890 passed an act prohibiting Chinese labor in the mines, but in 1891 the act was repealed.

MINE REGULATIONS.

The following are the principal points of the provincial act regulating coal mines:

Each mine is under the supervision of a certified manager, who gets his authority after an examination from the minister of mines. Inspectors are also appointed by the minister of mines. Their duty is to examine into the state of the mines from time to time. Certified managers make reports to the inspectors. No person, either male or female, under 12 years of age is allowed to work in the mines or above ground. Boys between 12 and 14 are allowed to work, by option of the minister of mines, in mines where the seams are thin, but must not work more than six hours each day. No boy under 18 years old is allowed to operate any engine, windlass, or gin, but a boy over 12 may drive any animal operating the same. Wages are paid by the weight of the coal, deducting rocks and débris. Single shafts are prohibited. Mines must have at least two shafts or outlets separated by not less than 10 feet of natural strata. Not less than 100 cubic feet of pure air per minute must be supplied for each person and animal employed in the mine. Each mine is required to be divided into districts of 70 men each, and each district must have a separate current of air. Mines are to be inspected as to ventilation once a day. Mines having had inflammable gas within twelve months are to be inspected at least once a day, and all miners are to be promptly withdrawn in case of danger. The regulations as to safety lamps and lights and the use of explosives are very strict. Each mine is to have special rules, which, under its peculiar state and circumstances, appear best calculated to prevent accidents. Old shafts or shafts not in use are to be fenced.

LEVI W. MYERS,
Consul.

UNITED STATES CONSULATE,
Victoria, May 11, 1892.

STOVES IN AUSTRIA.

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

Almost all the dealers in this city confine their business to porcelain and terra cotta or clay stoves. Iron stoves are used but very little either for cooking or heating purposes. The parlor, dining, and sitting room stoves are mostly very elaborate and sometimes highly artistic ornaments. The grate and fireplace are very small in comparison to the size of the stove, and it is necessary to light a new fire every morning. Fires are never kept over night. The construction of the stoves, as well as the saving propensities of the people, are the causes of this, and I presume the very inferior quality of the coal, which is only of a semihard quality, a little harder than our soft coal, makes the keeping of a fire over night almost impossible.

The Austrians are a very conservative people, and somehow a very strong prejudice exists here against everything American, which has its cause in the great fear of American competition and success in all branches of industry. Our American base-burner found a ready market in Germany for several years and had also been successfully introduced into Austria, and these and other countries of Europe might have become an important market for these goods in course of time if the manufacturers had had the forethought to protect their patents and trade-marks by taking out patents and registering their trade-marks in European countries to prevent the imitation of their products, which were at once imitated by numerous unscrupulous manufacturers in Germany. These poor German goods now take the place of the good United States base-heater, and our young export business is nipped in the bud.

The American inventive genius, fostered by the liberal patent law of the United States, has long become proverbial all over Europe, and American inventions are generally sought after and universally employed. In the most secluded villages of the remote European provinces the traveler will find American tools and implements, but in many cases only the invention is American, while the article itself is an imitation produced by enterprising European manufacturers, who sometimes not only copy the article, but also take out a patent for it, which, as long as it is not disputed, must be considered as valid by others. The American inventor or originator does not derive any profit from this trade, for the sole reason that he neglected to patent his article abroad.

The few base-burners which are sold here come from Germany, and the dealer, Otto C. Pellikan, 11 Prater Strasse 78, Vienna, assures me that he buys the Crown Jewel stoves, which he advertises as American base-burners manufactured in Detroit, Mich., at Nuremberg and other places in Germany at a price almost 40 per cent less than the American-made stove could be laid down here for, but that his trade in American base-burners was rather limited. Parties who bought these goods, he said, had been complaining of the great heat generated by these stoves. This climate requires only a moderate heat; the thick walls of the dwellings, the double windows, and the fashion of placing a long cushion in every window to keep out the air, I presume, must also be taken into consideration in deciding on the most appropriate form and capacity of the heating stove.

Mr. Hardtmuth, a manufacturer here of porcelain stoves, will exhibit his goods at the World's Columbian Exposition in Chicago, and is willing to establish a stove foundry in our country for the manufacture of all kinds of stoves, fireplaces, and open hearths in porcelain, terra cotta, or faïence if he will meet with the proper encouragement. At all events, it will be worth the trouble and it may be in the interest of our home industry to further investigate this matter. It seems certain that the American cast-iron baseburner of old can not be exported to Europe any more with profit, and there may be a chance to build up a new industry in the direction of clay stoves, which may be so improved and changed as to make them fill a want in our country.

JULIUS GOLDSCHMIDT,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Vienna, May 17, 1892.

THE GERMAN HOP CROP OF 1892.

REPORT BY CONSUL-GENERAL MASON, OF FRANKFORT.

In compliance with instructions from the Department, I have the honor to submit the following statement of the present condition of the growing hop vines in Germany and the outlook for the product of this year:

The area of culture can not be precisely stated until the statistics are collated at the close of the season; but unofficial estimates agree that there has been in Bavaria and some other provinces a slight increase—not more than 5 per cent—in the acreage devoted to hops as compared with that of last year, when the whole area under such cultivation in Germany was 109,825 acres. As the newly planted vines do not bear during the first year, the small increase in acreage above noted will not affect the productive area for 1892, which may be set down about the same as that of last year, against 113,115 acres in 1889. It has been stated in a previous report of this series that hop-raising in Germany, although highly profitable in some seasons, is at other times, by reason of overproduction and other contingencies affecting the market, uncertain and often disappointing; so that the Government does not encourage, but rather discourages, any important increase in the acreage of hop culture, which varies but slightly from year to year.

It is asserted by hop-growers that the weather of July and August decides the quantity of each year's product, while that of September determines its quality. It is therefore too early for any definite prediction of the quality of this season's crop, but its quantity may be approximately estimated. In

Prussia, where the standard average yield is 478 kilograms per hectare, the official report of August 12 estimates the crop of this season at 78 per cent of a full crop, or about 387 pounds per acre. This would be a deficit of 22 per cent below a normal crop, which, if it extended throughout the whole hop-growing territory of the Empire, would create a deficiency which, in presence of the already short supply in most markets, would revolutionize the trade. But there is abundant evidence that, unless the coming six weeks bring extremely unfavorable weather or some unexpected blight or insect pest, the hop harvest in the South German provinces—Bavaria, Baden, and Würtemberg—will bring the aggregate yield of Germany up to nearly or quite the average figure.

In 1890 Bavaria alone produced 28,439,000 pounds of hops, about half the entire product of the Empire. The average yield there in a good year is 500 kilograms per hectare (equal to 445 pounds per acre). In Würtemberg and Baden the conditions of soil, climate, and culture are practically similar to those in Bavaria, although hop-growing in the two former states is relatively less general and important than in the latter. But, as these three southern states collectively decide the character and quantity of the German hop crop from year to year, we may safely accept the present condition of the vines there as a key to the product of the current season. A somewhat careful study of recent local reports from about sixty different points in upper and lower Bavaria, Würtemberg, and the Palatinate shows a uniformly fair promise as to quantity and, unless some misfortune should yet intervene, an excellent prospect as regards quality.

Throughout southern and western Germany June and the first half of July were marked by remarkably bright, dry weather. The soil in much of this region is light and sandy, so that it suffers seriously from any prolonged drought. During the first fortnight of July the lack of sufficient rain had become ominous. The hop vines were of good color, but, owing to lack of adequate moisture, their growth had been checked; so that many vines had not reached the top of the poles at the time of blossoming, and their lateral spread was less rank and vigorous than usual. Just when the danger had become serious local rains fell more or less abundantly in many districts, which, although not sufficient to thoroughly soak the ground or freshen the shrunken streams, went far toward saving the hop vines. The present condition of the vines varies in nearly exact accordance with the amount of this local rainfall, and the reports from the different sections range from 80 per cent to a full crop, with an excess above the average at Rottenburg and a few other specially favored localities. The weather is at present warm and dry, and the early hop harvest will begin as early as the 25th of August.

Messrs. John Barth & Co., of Nuremberg, a high and trustworthy authority, estimate the crop of Bavaria alone this year at 26,800,000 German pounds, against 28,800,000 pounds in 1890 and 22,800,000 pounds in 1891. It is probable that about the same relative proportion with the crops of the two past years will be maintained in Baden and Würtemberg; so that, taking into account the estimated shortage in Prussia, the total product of Germany will be probably not far from 45,000,000 German pounds, which there is at present every reason to expect will be of uniformly good quality. Deficient or sudden and excessive rains, cold nights, or the black blight may yet impair the quality of the late harvest, but none of these calamities are anticipated.

Thus far there appears to have been very little buying in the principal German hop markets for purposes of speculation. On the 1st of July, when the outlook, by reason of drought, seemed most uncertain, Bavarian baled hops were selling in Nuremberg for 125 marks per 100 kilograms ($29.75 per 220 American pounds), while the best Würtemberg and Baden hops ruled 5 marks higher for the same quantity. These, it may be added, were moderate and ordinary prices for that season of the year.

Great Britain is the great consumer of the surplus hop products, and it is to the English hop fields that experienced dealers are looking most anxiously for the results which will affect most directly and vitally the market for the coming autumn and winter.

FRANK H. MASON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Frankfort, August 15, 1892.

FERTILIZERS IN THE WEST INDIES.*

FERTILIZERS IN JAMAICA.

REPORT BY VICE-CONSUL WRIGHT.

For the year ended March 31, 1891, there was imported into this island fertilizers to the value of $13,794.29, of which $11,878.17 in value came from the United Kingdom, $407.57 from the United States, and $1,508.55 from the West Indies; while for the year ended March 31, 1892, the total importations amounted to $19,909.80, distributed as follows: From the United Kingdom, $19,529.84; from the United States, $245.24; and the remainder from the West Indies.

It will be seen from this that, although the use of imported fertilizers is exceedingly small, it is on the increase.

The explanation of the practical monopoly of the United Kingdom in this trade is explained by the fact that the English manufacturers of commercial fertilizers hold themselves in readiness to analyze samples of the soil, in order to arrive at the chemical deficiencies thereof, and then compound the fertilizers to meet such deficiencies. Intelligent and practical users of fertilizers assure me that if American manufacturers will hold out the same inducements in regard to analyzing the soils and manipulating the manure to supply the requirements thereof, and in addition thereto will sell at the same price fertilizers of the same commercial value, the item of freights being so much in favor of the United States, her manufacturers can turn the tide in their favor.

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* For the Dutch West Indies the consul at Curaçao merely says: "Fertilizers are not imported here."

Although the area of Jamaica is only 4,193 square miles, it contains a great diversity of soils, and it would therefore require the honest and intelligent preparation of fertilizers on the part of American manufacturers to obtain and hold this trade. And just here I may remark that the principal crops (cane and bananas) being very exhaustive to the soil, it is a well-recognized fact that in a few years at most fertilizing must be largely resorted to, as the lands are virtually worn out, and the system of the past in turning out old lands and taking in new can no longer be resorted to, as the lands have all been under cultivation, that is, the kind adapted to the crops named, which, as before stated, constitute the principal cultivated crops.

I have been unable to ascertain the chemical value of the fertilizers imported, the quantity, or their selling price.

S. H. WRIGHT,
Vice-Consul.

UNITED STATES CONSULATE,
Kingston, July 23, 1892.

FERTILIZERS IN MARTINIQUE.

REPORT BY CONSUL KEEVIL.

There is annually imported 20,000 to 25,000 tons of nitrates, phosphates, and ammonia. About one-half is in a prepared state, the rest in crude form, which is mixed here by a firm engaged in that business with a capital of 320,000 francs. The firm is entitled Compagnie des Engrais de la Martinique. The factory is in the city of St. Pierre.

The material is all imported from the United Kingdom, and is packed in strong bags or barrels. The finished product is used for sugar cane only. Its analysis is as follows:

Cross's special cane fertilizer—nitrogen, equal to 9 per cent of nonvolatile ammonia, 19 to 20 per cent of soluble phosphates, and 3 to 5 per cent of insoluble phosphates, besides 3 to 4 per cent of soluble salts of potash and alkaline salts.

Cross's early potassic cane fertilizer—nitrogen in various forms equal to 6½ per cent of ammonia; phosphoric acid, soluble, equal to 15 to 16 per cent of phosphate rendered soluble; phosphoric acid, soluble, in finely prepared form, equal to 5 per cent of phosphate of lime; potash equal to 10 per cent of sulphate of potash.

There are no duties on fertilizers, and wharfage is nominal. Small lots of sulphate of ammonia and nitrate of potash have been recently imported from the United States through a commission house.

The price, laid down at Martinique, is about 230 to 235 francs per ton of 2,240 pounds for Cross's and other English manufacturers'.

The quantity used per acre varies. The soil in the uplands being loose and rains frequent, 250 pounds to the acre are used; the lowland being more compact and clayey, 200 pounds to the acre are all that is required. If subsoiling was practiced more by planters, a less quantity would be necessary.

The terms on which the business is carried on are as follows: Drafts of Colonial Bank of London agency at Martinique on New York or London at 5.25 francs to the dollar on delivery.

It would appear that, with cheap material in the United States and the short distance to transport the finished article, the United States should command the market, as we do for yellow-pine lumber, flour, corn, lard, and meat products.

ALFRED B. KEEVIL,
Consul.

UNITED STATES CONSULATE,
St. Pierre, July 28, 1892.

FERTILIZERS IN MATANZAS.

REPORT BY CONSUL CHENEY.

I can not learn that any fertilizers other than those made upon the estates are used, or that any serious attempt has ever been made to introduce fertilizers from abroad. I doubt if they could be used with profit.

ELIAS H. CHENEY,
Consul.

UNITED STATES CONSULATE,
Matanzas, July 15, 1892.

FERTILIZERS IN ST. THOMAS.

REPORT BY CONSUL HORNE.

Replying to circular of June 2, 1892, I beg to say that there is no demand for fertilizers, nor are there any imported to the islands included within my consular jurisdiction.

Mr. Joseph L. Taylor, the consular agent at Santa Cruz, reports that—

> Many years ago there was some guano and patent fertilizers imported from England; but of late years, owing to the low price of sugar, the planter has been satisfied if he could provide sufficient manure.

This island is nonproductive, and very little cultivation is carried on in the island of St. John; but there may be a field for trade in fertilizers in the island of Santa Cruz if a proper canvass be made by dealers.

SAML. B. HORNE,
Consul.

UNITED STATES CONSULATE,
St. Thomas, July 9, 1892.

FERTILIZERS IN ST. CHRISTOPHER.

REPORT BY CONSUL PARKER.

During the calendar year 1891 there was imported into the island of St. Christopher from the United Kingdom 187⅔ tons of fertilizers, valued at $11,241.66 (£12 10*s*. per ton of 2,240 pounds); from the United States for the same period, 43⅓ tons, valued at $1,818.74 (£8 10*s*. per ton of 2,000 pounds).

It will be observed from the foregoing statement that the greater part of the commercial fertilizers used on this island are imported from Great Britain for various reasons. The two strongest reasons are the following: First, nearly all the landowners reside in Great Britain and are largely controlled by home influence; second, a few years ago the English fertilizer companies sent out a chemist who analyzed the soil and prepared a special formula of a fertilizer for the sugar-cane plant, which is very popular here and sells at the highest price, $60 per ton.

In referring to prices, the showing is largely in favor of the United States; and the freights from New York to St. Christopher are only one-half of what they are from London. Now, with a little enterprise and industry on the part of fertilizer-manufacturing companies in the United States, they could very soon have all this trade. They must not forget that the island of St. Christopher is apparently one sugar-cane farm. The different estates are not divided by any fences, simply turning rows and ditches.

I have traveled all around the island several times and find little else than sugar-cane plantations, all well cultivated.

These farms require a good sugar-cane fertilizer, and if our manufacturers will send down a chemist, analyze the soil, and prepare as good a fertilizer as the special fertilizer imported from London, they will control this trade, as the freights from New York, as heretofore stated, are only one-half what they are from London.

The freights should be very cheap from Savannah and Key West, as it is only 800 miles from the former and 600 miles from the latter place to this island.

The United States should establish a weekly mail from Key West to these islands. We are here only 600 miles from our own country and can not get a regular mail, owing to the employment of the Quebec line of Canadian vessels hailing from London, which is all the time fighting for freights and is perfectly indifferent about the United States mails. At times (twice) we have had two mails within forty-eight hours, at other times not a mail in a month.

STEPHEN W. PARKER,
Consul.

UNITED STATES CONSULATE,
St. Christopher, July 13, 1892.

FERTILIZERS IN TRINIDAD.

REPORT BY CONSUL PIERCE.

Pursuant to instructions contained in Department circular dated June 2, 1892, calling for a report upon the trade in commercial fertilizers in this consular district, I beg to observe, in respect to the three islands constituting the district, that the only substantial opening for American trade in fertilizers is in the island of Trinidad. The industry of Grenada is principally limited to cacao, and the sugar industry in both Grenada and Tobago is comparatively of not much importance. I have not seen the custom-house returns for Grenada, nor the last return (1891) for Tobago, but in 1890 only £18 6*s*. 8*d*. worth of manure was imported at Tobago. Trinidad, however, imported in 1890 fertilizers (or manures, as is the custom-house designation) to the value of £40,892. The importations last year (1891) were considerably less, being valued at £19,867.

The value of importations for 1890 and 1891 was as follows:

From—	1890.	1891.
United Kingdom	£40,682	£19,135
British West Indies	5	....
British Guiana	200	8
United States	5	558
France	....	166
Total	40,892	19,867

While it will be seen that the United States got somewhat of a foothold last year, it is still not fairly in the market. Within the last few months several American manufacturers of fertilizers have made inquiries of this consulate and have otherwise indicated a disposition to extend their trade to Trinidad, and it is reasonable to expect that, within a few years, the above figures will undergo a great change in favor of the United States.

The only crop of Trinidad worthy of consideration in this connection is the sugar-cane crop. Imported manure might be of service in promoting the growth of cacao trees and cocoanut trees, but I have not heard that any has been used for that purpose, except in the way of experimenting.

Probably seven-eighths of the sugar-cane crop of Trinidad belongs to residents of the United Kingdom (who send out the fertilizers to their respective agents), and it is believed a trade in American fertilizers can not be built up here to any considerable extent without consulting them.

The principal sugar-estate owners are as follows: C. Tennant Sons & Co., 9 Mincing Lane, London; Gregor Turnbull & Co., St. Vincent Place, Glasgow, Scotland; W. F. Burnley & Co., Glasgow, Scotland; Colonial Company (limited), London, England; C. D. Kemp Welsh, No. 41 Berners street, London, England; John Cumming, Port-of-Spain, Trinidad; G. F. Fenwick, Port-of-Spain, Trinidad.

As the information called for by the circular admits of quite a variety of facts obtainable only from different persons, and embraces to a more or less extent mere matters of opinion, I drew up a series of questions which I thought covered the subject and requested four trustworthy and competent parties to answer them. I refrain from thanking these gentlemen by name, because their answers reveal their private business; but I am much obliged to them for their assistance.

The questions were as follows:

(1) Name the principal fertilizers in use and the quantity per acre used of each kind.

(2) Give the analysis of each kind of fertilizer.

(3) At what season of the year are fertilizers imported and used on the soil?

(4) Are the fertilizers in use imported in barrels, bags, or in bulk?

(5) What styles of packages are preferred?

(6) Do the merchants pay cash on presentation of drafts with bill of lading or other satisfactory documents attached?

(7) Do the fertilizers go into the hands of the planter from the merchant on credit? If so, how long?

(8) State, as an average, the respective cash prices per ton, say, on landing.

(9) What is the aggregate cost of lighterage and other necessary expenses per ton between the ship's tackle and the warehouse of the merchant?

(10) Any further information pertinent to the subject.

The first set of answers was as follows:

(1) There are many kinds of fertilizers used here, depending much upon the taste or fancy of the planter or proprietor. Perhaps a mixture of sulphate of ammonia and superphosphates or ground mineral phosphates is used as extensively as any other. There is also a large consumption of Peruvian guano and cane manures of various kinds. The quantity per acre depends entirely upon a variety of circumstances, and definite information upon this point could only be obtained from practical planters.

(2) We are only in a position to give you the analysis of Ohlendorff's guano and manures, and these you will find in the pamphlet handed you.*

(3) Fertilizers are generally imported pretty early in the year, and applied chiefly just after crop is finished, say May and June.

(4) The fertilizers in use here are mostly imported in tierces containing about half a ton each, but bags are also imported. They generally weigh from 10 to 14 to the ton.

(5) Tierces are generally preferred.

(6) Manures are frequently imported on long credit, and are also frequently consigned to merchants for sale. In the latter case they sell ex wharf, if possible, on best terms they can make, but as a rule they have to store and sell gradually as opportunity offers.

(7) Partly answered above. Long credit is sometimes given to planters, as manure bought and applied in May or June of one year is really for the benefit of canes to be reaped nine or twelve months later.

(8) The figures referring to our own manures have already been given, and we are not in a position to give any others.

(9) Vessels land cargo on wharf here, they paying lighterage, etc.

(10) There is no other information which occurs to us at the moment.

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* There are only two brands described in the pamphlet which have any standing here, to wit, dissolved Peruvian guano and Ohlendorff's special manure. The price of dissolved Peruvian guano at Trinidad is £14 1*s*. 3*d*. per ton, and the analysis is as follows: Nonvolatile ammonia, 7 per cent; guano phosphates, 20 per cent soluble and 4 per cent insoluble; potash, 2 per cent. The price at Trinidad of Ohlendorff's special manure is £12 10*s*., and the following is the analysis: Ammonia, 4 to 4½ per cent; phosphate, 30 to 35 per cent, of which 20 per cent is soluble; potash, 2 per cent.

The following is the second set of answers:

(1) Sulphate of ammonia and superphosphate of lime, used generally one-third and two-thirds. About 1 cwt. per acre on an average.

(2) Can not give analysis.

(3) Imported in April and May and used beginning of the wet season, generally between May and July.

(4) Tierces, puncheons, and bags—largely in bags.

(5) Casks are preferred.

(6) Not purchased here. The manure is shipped from Great Britain for account of the plantations.

(7) Answered by No. 6.

(8) Sulphate of ammonia, about £13 10*s*. per ton of 2,240 pounds; phosphate of lime, about £4 per ton of 2,240 pounds. Cost of both includes freight and all charges landed here.

(9) Expense of lighterage is included above, and may be taken at 60 cents per ton; no other landing expenses.

The third set of answers is as follows:

(1) Sulphate of ammonia (alone), 2 to 3 cwts. per acre; sulphate of ammonia and superphosphates mixed at the rate of 2 of superphosphates to 1 of ammonia, 4 cwts. per acre; dissolved guano, 3 to 4 cwts. per acre; a mixture of sulphate of ammonia (45 to 50 per cent), muriate of potassium (12 to 15 per cent), and dissolved bones (35 to 43 per cent), 3 to 4 cwts. per acre.

(2) Sulphate of ammonia, 24½ to 25 per cent; superphosphates, 35 to 36 per cent soluble phosphates; dissolved guano, 8 to 9 per cent ammonia, 20 to 22 per cent soluble phosphates, 3 to 4 per cent insoluble, 2 per cent potash; muriate of potassium, 70 to 80 per cent; dissolved bones, 2½ per cent ammonia, 21 per cent soluble phosphates, 10½ per cent insoluble.

(3) In my opinion the best time to apply artificial manures is in April and May, before the wet season sets in.

(4) Superphosphates can be imported in double bags, all the others in tight puncheons.

(5) Tight puncheons preferred. They can be used afterwards for sugar or molasses.

(6) Manures bought in the colony by estates are usually sent to the importing merchant on consignment for sale and returns.

(7) Manures sold in the island are always sold on credit—mostly three months, sometimes six months.

(8) Our manures cost us landed on the estate: Sulphate of ammonia, £12 15*s*. to £13 per ton (cask included); the mixture (sulphate of ammonia, muriate of potassium, and dissolved bones), £10 10*s*. per ton (cask included); superphosphates, £4 10*s*. to £5 (in bags). Dissolved guano, I understand, can be bought in the island at £12 10*s*. to £13 per ton (in bags).

(10) The great bulk of artificial manures is imported directly from England or Scotland by the the proprietors of estates.

The fourth set of answers was:

(1) Sulphate of ammonia and dissolved guano; 2 cwts. per acre. Backward fields sometimes receive a second application.

(2) Sulphate of ammonia—nitrogen, 20.78 per cent; equal to ammonia, 25.23 per cent; dissolved guano—soluble phosphate, 19.56 per cent; insoluble phosphates, 2.12 per cent; potash, 4.22 per cent; equal to soluble potash, 7.81 per cent; total nitrogen, 7.27 per cent (including nitric nitrogen, 54); equal to ammonia, 8.82 per cent; dissolved guano—moisture, 7.44 per cent; soluble phosphate, 19.06 per cent; insoluble phosphates, 2.39 per cent; potash, 2.23 per cent; equal to sulphate of potash, 4.12 per cent; nitrogen, 7.55 per cent; equal to ammonia, 9.17 per cent.

(3) Early May to June.

(4) Ammonia in casks, say tierces; guano in bags.

(5) As above.

(6) Estate-owners principally reside in Europe and ship the manure direct to their estates or are supplied by merchants here, who sell from consignments held for manufacturers.

(7) Three months' credit.

(9) Lighterage, about 60 cents per ton.

I am advised, in addition to the above sets of answers, that one of the principal nonresident sugar-cane producers sends out from the United Kingdom a fertilizer known as "Turnbull's mixture." This mixture is composed of the following: Sulphate of ammonia, 40 per cent; muriate of potash, 10 per cent; superphosphates, 50 per cent.

The first cost of Turnbull's mixture is £7 15*s.* per ton. Delivered here in steamer's warehouse it costs about £10. It is imported in secondhand sugar casks containing half a ton each.

The largest local planter uses principally a mixture of his own, composed of two-thirds ground phosphate and one-third ammonia. Both ingredients are imported in casks. The first cost (net) of ammonia in London is, say, about £10, and delivered on wharf in Port-of-Spain (Trinidad), say, £12, including freight, casks, lighterage, and all other expenses. The ammonia is guarantied to be 24¾ per cent, which is understood here to be about as pure as is ever manufactured for fertilizing purposes. The ground phosphate costs, net, in London about £1 18*s.* 2*d.*, and delivered here on wharf, including all expenses and charges, say, £3 14*s.*

In conclusion, I beg to observe that there are no tonnage or light-house dues at this port, and all manures are entered free of custom-house duty.

WM. P. PIERCE,
Consul.

UNITED STATES CONSULATE,
Trinidad, July 25, 1892.

SPANISH WINES.

REPORT BY CONSUL TURNER, OF CADIZ.

I have the honor to inclose herewith a translation of the recent royal decree against the adulteration and falsification of wines and a report on same from Consular Agent Hall, of Jeres de la Frontera.

That all the sherry wines produced in this consular district have been worthy of being above the suspicion of adulteration, as stated by Mr. Hall, is not, in my opinion, borne out by experience. There is no doubt that many of the old and renowned sherry growers are above adulterating or falsifying their wines, but there are others whose concoctions of water, alcohol, and chemicals under the name of wine were destroying the legitimate wine trade of Spain. Some of these parties could be named without going out of Cadiz.

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, May 5, 1892.

PLASTERING OF WINES IN JERES.

[Inclosure 1 in Consul Turner's report.]

It is notorious that the true and reputed wines produced in the district of Jeres de la Frontera require a prolonged and most careful breeding, with the object of bringing them to that state of perfection which prepares them for use and exportation and gives them those peculiar qualities so esteemed by all intelligent wine-drinking people, which qualities are enhanced with time.

During the time of such breeding the wines suffer certain ullages, principally in their watery component, thereby concentrating their chief attributes, which constitute the essence or extract, and increasing the natural alcoholic strength as the result of nature's phenomena, the desiderata of which is as yet ignored even by the most intelligent in the matter.

Hence a must which, after fermentation, would be found to contain not above 2 grams of sulphate of potash per liter would shortly after exceed such limit, and more than duplicate—even triplicate—it when from must it had reached the state when considered as old wine.

Again, even though, as an object of discussion, it be admitted that the sulphate of potash be in anywise noxious as existant in sherry wines, it must be borne in mind that, as the juice of the grape in passing from must to wine and increasing in age develops its acoholic strength, in like manner are developed its characteristic strength, as well as aromatic and spirituous principles. Hence it is impossible to consume such wine in the quantities and with such freedom as occurs with new and light wines, and, as regards the physiological effects which may be attributed to the sulphate of potash, such are decidedly modified, if not completely neutralized, by the tonical action of the other principles of sherry wines.

That the sprinkling of the grape, when in the wine press, with lime is an immemorial custom *cela va sans dire*, and that the custom has been and is nonproductive of pernicious effects, does not stand to reason.

It is an undisputed fact that the use of lime in sprinkling the grape when being trodden in the wine press has in no wise been an obstacle to the fame, credit, or praise of sherry wine, nor has the fact prevented their being worthy of the highest recommendation by most eminent and reputable medical authorities.

In different medical congresses formed of the most eminent members of Spain, as well as other countries, the wholesome, salutary conditions of sherry wines have been unanimously proclaimed, thereby confirming the credit obtained by said wines in innumerable expositions.

In conclusion, in support of this assertion of the nonpernicious effects of sulphate of potash in sherry wines, even when exceeding 2 grams per liter, while a limit might with justice be fixed as regards such wines as are termed *de pasto*, or light colored, and freely drank, such is not applicable with pure and mature sherry wines, the reason of which is obvious. Of *de pasto*, or light colored, and freely drank wines, it can be considered that the consumption is 1 liter per capita per diem, whereas with mature sherry wines the use is not daily, in a universal sense, nor can it reach the quarter part of the consumption of light wines; hence the amount of sulphate of potash imbibed by those drinking mature sherry wines would be insignificant, and, if insignificant, harmless.

To all those who are truly cognizant of what they are, it is an established and undeniable fact that, alone among wines, true and mature sherries have that attribute of absolute individuality which preëminently distinguishes them from wines produced in other countries, which, open to adulteration and falsification, inundate all markets of the world, to the prejudice of the reputation of sherry wines, *fiat lux profecta;* and all charges or accusations against sherries will of their own instability fall to the ground.

A commission representing the interests of this city, comprising the mayor and four prominent wine merchants of the locality, was sent to Madrid with the object of obtaining a modification in the late royal Spanish law in those parts which refer to the plastering of wines as regards sherries. Its representation to the minister of fomentation has elicited the promise that the article of the said law regarding the plastering of wines will be greatly modified, if not entirely abrogated, as concerns sherry wines.

Anent the visits of inspection as prescribed by the law herein referred to, while it is unanimously admitted that all zeal on the part of the Government in avoidance of adulteration and falsification can in no wise be too enthusiastically approved, the visits of inspection to the wine cellars of Jeres de la Frontera would but be productive of much inconvenience to the wine-breeders, owing to the special conditions in which the breeding and care of the wines are practiced.

In closing, I am justified in asserting that, based on my experience of years as an employé in different wine-shipping houses of this city, and my intimate acquaintance in all of the wine cellars here, which permits of my observing and studying all their operations, to none of those houses whose invoices pass through my hands as of shipments to the United States can be imputed the charge of adulteration or falsification in the preparation of their wines and brandies.

JAMES A. HALL,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Jeres de la Frontera, May 2, 1892.

DECREE AND LAW RESPECTING THE FALSIFICATION OF WINES, ISSUED BY THE SPANISH GOVERNMENT UNDER DATE OF MARCH 11, 1892.

[Inclosure 2 in Consul Turner's report.—Translation.]

In conformity with the proposition of the minister (secretary) of fomentation (development of trade and industries) and concurrent with the council of ministers, I hereby, in name of His Majesty, my son, the King Alfonso XIII, and as Queen Regent of his Kingdom, decree the following:

ARTICLE 1. It is prohibited that the name of wine be given to any product which is not the liquid resultant from the fermentation of the juice of the grape, exempt from the addition of any matters foreign to the components of such juice.

ART. 2. In the elaboration or preparation and keeping or conservation of wine only the following operations will be permitted:

(1) The mixture (blend or melange) of different natural and pure wines to obtain commercial classes and styles.

(2) The strengthening or fortifying of wines with spirits of wine or with that spirit resulting from the juice produced from the pressed skin of the grape, when such alcoholic liquid is perfectly clarified and purified.

(3) The clarification of wine by means of glue or albumen, either as produced from eggs or blood, when such glue or albumen is not altered as regards its natural properties or components.

(4) The sulphuring of casks in which wine is to be prepared.

(5) The preservation of wine by natural means without the use of matters foreign to such natural wines.

(6) The addition of common salt in a proportion of 2 grams to the liter of wine.

(7) The addition of cream of tartar.

(8) The sprinkling of the grapes when in the wine press with lime,* when the use of such lime does not produce in the wine resulting from the pressing of the grapes more than 2 grams of sulphate of potash to the liter.

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* An immemorial custom, the object of which is to impede the development of acridness in the must, which might tend to its turning to vinegar instead of wine, and also to absorb the watery matter prevalent in the grape, thereby producing in the wine resulting from the must the concentration of those qualities which constitute the typical richness and body of the sherry wines.—J. A. H.

(9) The addition of perfectly pure sorghum sugar.

ART. 3. The use of alcoholic beverages and the addition of the following matters with wines in preparation is absolutely prohibited: (1) Industrial alcohols, *i. e.*, all alcohols not proceeding from the distillation of products of the vine; (2) coloring matters, no matter of what nature; (3) salicylic acid; (4) boracic acid; (5) glycerin; (6) alkaline carbonates; (7) litharge; (8) all metallic salts; (9) sugar produced from vegetable-root flour; (10) acrid substances or astringent principles; (11) perfumes, ethers, and essences; (12) all other matter foreign to wine which may be used in the elaboration of or addition to same, and which may not be mentioned in article 2.

ART. 4. Such wines and alcoholic beverages as may be found to contain any of the matters named in the foregoing article will be qualified as adulterated and noxious to health, and the manufacturers or venders of such subject to punishment for crime as defined in article 356 of the penal code.

ART. 5. With the exception of medical preparations, the elaboration and sale is strictly prohibited of any liquid or product under the name of wine which does not comply with the prescription of articles 1 and 2 of this royal decree.

ART. 6. The strict fulfillment of the former resolution is imposed upon the civil governors and their delegates, and to such end visits of inspection are to be made to the establishments where wine and alcoholic beverages are elaborated and sold when there may be suspicions of the infringement of said resolutions. Such inspections should be made by land surveyors or competent pharmaceutical or medical authorities, and when not such by competent persons named and appointed by the governor of the province.

ART. 7. The parties who are nominated to make such visits as are defined in the former article will receive as remuneration 25 pesetas for each visit, as also traveling expenses from their place of residence to that of establishments visited. Such remuneration and traveling expenses are to be for and on account of and paid by the owner of such establishment in all cases where the infringement of the resolutions of this royal decree is proven.

ART. 8. In the act of carrying out the visits of inspection referred to in article 6 the delegate so appointed will, in the presence of the owner of the establishment or his representative and two witnesses, take three samples of each liquid suspected as adulterated or falsified, in quantities of not more than 1 liter. Of such samples taken, after being duly and equally sealed, one is to be delivered by the delegate to the owner of article denounced and two forwarded to the governor of the province. Duplicate act or record shall be taken of such operation, one copy to be delivered to the owner of the establishment and one retained by the official delegate, to such end as may be conducent.

ART. 9. Apart from the criminal responsibilities defined in articles 356 and 547 of the criminal code, the infringers of any of the parts of the present royal decree will be administratively mulcted in sums not to exceed 500 pesetas and punished with the closing of the establishment, as follows: Fine and closing of the establishment where adulterated wine or alcoholic beverage is elaborated; where such adulterated articles are sold, fine will be imposed for first infringement, and fine with closing of establishment in case of repetition of infringement. The imposition of fine and closing of establishment are to be within the competency of the civil governor, based on the due judicial proceeding and analysis of the denounced articles, for which analysis the samples taken by the visiting delegate will be used.

ART. 10. Against the decree issued by the governors of provinces in the rights invested in them by the foregoing article, the privilege is granted within the term of fifteen days of appeal to the minister of fomentation, who will decide the justice of such appeal after analysis of the denounced articles by the laboratory of the enological central station of Alfonso XII's agricultural institute. To this end, on forwarding the record of proceedings in the cases decreed by the governor of the province, this official will send one of the two samples taken by the delegate when visit of inspection was made in conformity with prescriptions of article 8, and the appealer will, with his appeal, forward his sample, the intact state of seals on same being duly attested by the public officer receiving same. In case the said seals should not be found intact or show signs of having been tampered with, the result of the appeal will depend on the analysis of the sample forwarded by the governor of the province.

ART. 11. The royal order of February 23, 1860, is now derogated, as also any and all other resolutions which may be in opposition to the present royal decree.

Given in the royal palace at Madrid this 11th day of March, 1892.

MARIA CRISTINA.

AURELIANO LINARES RIVAS,
Minister (Secretary) of Fomentation.

MEXICAN EXPORTS.

REPORT BY CONSUL-GENERAL GUENTHER, OF MEXICO.

From a statistical abstract of Mexican exports for the first half of the fiscal year 1891–'92 (six months ended December 31, 1891), prepared by the treasury department and just issued, it appears that the total value of all exports during that period amounted, in Mexican dollars, to $41,246,514.48, of which sum $29,584,894.10 was the value of precious metals and precious metal ores and $11,661,620.38 the value of all other articles of merchandise. The exports to the United States amounted to $25,813,167.92, $17,508,435.36 being the value of precious metals and precious metal ores and $8,304,732.56 of all other merchandise.

It will be seen that the United States received 62.5 per cent of the total value of all articles exported, inclusive of precious metals and precious metal ores, or 59.2 per cent of the total value of the exports of precious metals and precious metal ores and 71.2 per cent of the total value of all exports, exclusive of precious metals and precious metal ores.

The following are the articles and value in Mexican dollars of the exports, exclusive of precious metals and precious metal ores:

Articles.	Value.	Articles.	Value.
Hennequen	$2,956,874.94	Chicle	$379,302.10
Lead	1,390,951.96	Ixtle	333,379.70
Coffee	1,240,966.92	Materials for paper	290,120.00
Hides	778,651.81	Chick-peas (garbanza)	239,721.73
Woods of different kinds	768,526.89	Coal	127,963.00
Tobacco	725,649.15	All other merchandise	816,280.82
Vanilla	724,695.61	Total	11,661,620.38
Copper	461,320.88		
Broom wood (zacaton)	428,114.87		

The total value of all exports during the first half of the fiscal year 1891–'92 exceeded that of the corresponding period of the year 1890–'91 by $8,876,019.42, of which sum $7,419,701.17 was in the value of precious metals and precious metal ores and $1,456,318.25 in the value of all other merchandise.

The Mexican dollar is at present quoted at 68.5 cents American.

RICHARD GUENTHER,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Mexico, June 2, 1892.

WAGES OF TELEGRAPHERS IN GREAT BRITAIN.

REPORT BY CONSUL SHERMAN, OF LIVERPOOL.

In the Government service telegraph operators are divided into two classes, and the maximum pay is fixed according to the size or importance of the town.

The weekly wages are as follows:

Description.	First year.	Second year.	Third year.	Minimum.	Annual increment.	Maximum (according to size of town).
Men:						
First class.........	....	....	....	$9.73	$0.48	$12.16, $12.65, $13.13, $13.62.
Second class......	$2.92	$3.40	$4.38	....	.48	$7.78, $8.51, $9.24, $9.73.
Women:						
First class.........	....	....	....	6.80	.36	$7.78, $8.02, $8.26, $8.51.
Second class......	2.43	2.92	3.65	....	.36	$5.81, $6.07, $6.32, $6.56, $6.80.

The second class of men contains twice the number in the first class, and the women's classes are in similar proportions. The number of women employed is one-third of the total force.

Eight hours constitute a day's work, and any time beyond eight hours is regarded as extra duty, and is paid for at one rate and a quarter of ordinary wages, *i. e.*, for every hour of overtime the operator is credited with one and one-quarter hours. Night duty consists of seven hours, that is to say, every hour served between 10 p. m. and 5 a. m. is regarded as equal to one hour seven and a half minutes. On Saturdays the operators are allowed one or two hours off if business permits.

Operators are paid at the rate of one forty-eighth of their weekly wages for each hour they work on bank holidays, and one forty-eighth, with one-quarter added, for each hour worked on Sunday, Good Friday, and Christmas, in addition to their weekly wages.

The railway companies maintain and operate telegraph wires for their own purposes, such as the block system for signaling trains and messages concerning railway traffic; they also maintain public telegraph wires, which are erected on the same poles as their own wires, for the post-office.

Operators employed at railway offices are the servants of the various railway companies and are paid by them.

The companies are allowed commission of 1½*d.* (3 cents) for every telegram they forward or receive on behalf of the post-office.

The charge for inland telegrams is half a penny (1 cent) per word, with a minimum charge of 6*d.* (12 cents).

On the London and Northwestern Railway the pay of telegraph operators is based on three hundred and sixty-five days in the year. The question of Sunday overtime was gone into some years ago, and it was arranged to give the operators an allowance of $12.65 per year, or $1.05 per month, in lieu of overtime, and this is paid them whether they perform one or more days' Sunday duty in the month. The scale of pay for telegraph operators is $145.99 per annum, rising to $389.32 by annual increments of $24.33, and the ordinary hours of duty are ten or twelve per day. Of course, the pay of operators in charge is higher and according to the class of station, rising from $437.98 to $729.97.

On the Midland Railway the pay of telegraph operators is on the following scale:

Year of service.	Pay.	Year of service.	Pay.
First	$97.33	Sixth	$291.19
Second	121.66	Seventh	316.32
Third	170.32	Eighth	340.65
Fourth	218.99	Ninth	364.98
Fifth	267.65	Tenth	389.32

Salaries above $389.32 are dealt with according to the special circumstances of each case. Eight hours, as a rule, constitute a day's work. The operators employed in the freight department do not work on Sundays or national holidays; those in the passenger department work on such days in rotation, according to the number employed, *i. e.*, if there be only two in an office they work on Sundays and national holidays alternately, and so on, but do not receive extra remuneration for so doing.

On the Great Western Railway the rates of pay of telegraph operators vary in the case of juniors from $97.33 to $291.19 and in the case of adults from $340.65 to $729.97 per annum. The average hours per day are ten. They are required to work on Sundays and national holidays when their services are necessary, and do not receive extra pay for so doing.

On the Lancashire and Yorkshire Railway the wages of first-class telegraph operators range from $4.86 to $6.32 a week, and ten hours constitute a day's work, exclusive of meal hours, which are not allowed. Eight hours constitute a day's work of those operators who are required to perform Sunday and night duty in their turn. National holidays are not recognized; neither are the operators compensated specially for working on those days. They are, however, allowed an annual holiday of six days with pay.

THOS. H. SHERMAN,
Consul.

UNITED STATES CONSULATE,
Liverpool, July 18, 1892.

FRENCH TAPESTRIES.

REPORT BY CONSUL-GENERAL KING, OF PARIS.

Referring to instruction dated February 18, calling for a report on the manufacture of the "Gobelins," I would apologize for the delay in forwarding this report, occasioned by difficulties in securing the necessary data for the same. The manufactory is not situated in the Rue Mouffetard, as stated in the instruction, but at No. 42 Avenue des Gobelins.

I am unable to furnish any general information concerning it, but the inclosed report, which has been prepared by Mr. George Debray, who is connected with this office as a special expert, will be found to contain certain details of manufacture. I inclose some historical notes relative to the Gobelin manufactory, and also communications sent to me by the consul at Marseilles and the vice-commercial agent at Limoges relative to the tapestry manufactories of Nîmes and Aubusson, respectively. In connection with the above, I beg to call the attention of the Department to the fact that it is extremely difficult to obtain information from French manufacturers.

ADAM E. KING,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Paris, May 9, 1892.

GOBELIN, BEAUVAIS, AND AUBUSSON TAPESTRIES.

[Inclosure 1 in Consul-General King's report.]

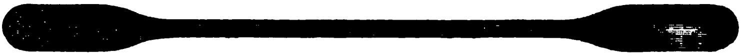
Cotton warps, denominated "boyaux" are employed.

The weft employed is "two-fold wool," and is a species of Australian mohair wool, denominated "laine brodé," and having the characteristics of being firm and open.

The wefts are dyed by expert chemists and dyers, with the old method of wood dyes (indigo, cochineal, curcuma, etc.). From six to eight thousand shades are dyed and employed, on account of the shadings. The dyes employed render very bright and resisting shades.

Besides the woolen tapestries, part wool and part silk tapestries are also manufactured, as also a limited number of all silk. When silk is employed with wool, it serves to make the design clear.

The method of manufacturing Gobelin and Beauvais is as follows: A small esquisse, or design, is first painted in oil colors of the tapestry to be manufactured, after which a second one, but of natural size, is painted, permitting to distinguish, besides the exact size, the colors and graduations of the future tapestry. The design is then traced on the back of the boyaux, or warp, with ink, or, more generally, with special pencils, with the aid of tracing paper, from the large oil painting. The colors (wefts) being then dyed, prepared, and assorted, and each one contained on a "spoulin" made of boxwood and shaped in this manner—



Boxwood tapestry spoulin.

the artists proceed with the weaving. When a tapestry is large, it is divided into several divisions, each workman weaving a division, which is rolled upon the looms as fast as manufactured.

The quality of Gobelin tapestries is obtained by employing boyaux, or warps, ranging from 6 to 10 threads and wefts ranging from 12 to 20 threads, according to the fineness or quality of the work required.

In the manufacture of Beauvais tapestries warps, or boyaux, ranging from 6 to 12 threads are employed and wefts ranging from 12 to 20 threads. In the manufacture of both Gobelin and Beauvais tapestries the wefts are, in general, double in quantity the number of warps, but a triple quantity is also employed; for example, a warp counting 6 boyaux may be woven with wefts of 12, 14, 16, 18, or 20 threads.

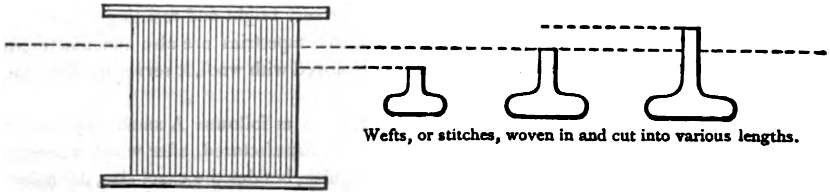
The number of colors entering into a tapestry necessarily influences the quality, as on the same warp twenty different qualities may be manufactured, according to the number of colors employed. The value of each respective color is considered double, that is, the value of two colors is double that of one color, three colors triple that of one color, etc. The subjects that the tapestries represent also influence their value, ordinary shaded green landscapes, for instance, costing much less than portraits requiring a variety of colors.

The value of Gobelin and Beauvais tapestries ranges from 3,000 to 4,000 francs per square meter for Gobelin, and for Beauvais tapestry the average price per square meter is 7,000 francs.

The characteristics of the Government manufacture des Gobelins are especially large historical scenes, reproductions from celebrated paintings, etc., and which are official commands. This manufactory is not permitted to sell to private parties except upon permission of the minister of fine arts, under whose direction it is placed, as is also the manufacture de Beauvais. The characteristics of the Beauvais manufacture are almost in an exclusive manner small designs, among which are a large number of flowers, etc. The designs are, in general, much more complicated than those of the Gobelin manufactory.

The warps, or boyaux, employed at the Gobelin and Beauvais manufactories are always perpendicular and the wefts horizontal.

To the Gobelins manufacture is joined the carpet manufacture of "la Savonnerie," which velvet carpets, reproducing historical and mythological subjects, are manufactured in the same way as velvets, that is, the wefts, after having been woven into the warps, are sheared upon the face of the tissue (facing the artists) by measurement to a given length, to give more or less thickness to the velvet effects. The warps are disposed in the same manner as for the manufacture of tapestries, but the artists work with the face of the tissue facing them, while it is the reverse in the manufacture of tapestries.



Wefts, or stitches, woven in and cut into various lengths.

"Boyaux," or warps.

In the city of Aubusson there are but private manufacturers, who manufacture upon the same general principle as in the State manufactories, but simplifying the procedure and not manufacturing as fine or with the same care and time.

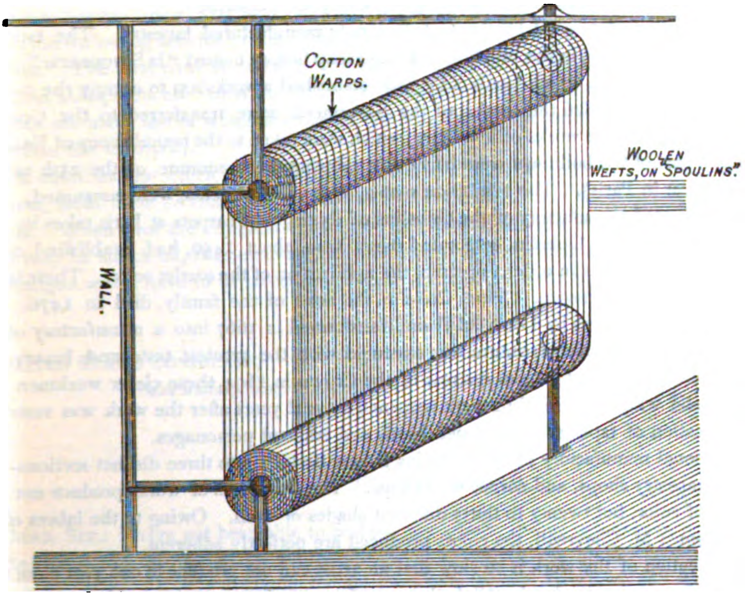
The warps employed at Aubusson are always in a horizontal position, and the designs, which are, in general, but "gouache," or water-color designs, and sometimes ordinary oil paintings, are merely placed beneath the boyaux, or warps, in such a manner that the workmen may distinguish them and follow the designs and colorings. However, when great attention is given, tapestries rivaling those of the State manufactories may be manufactured.

The artists employed by the French State manufactories receive very high salaries, while those employed at Aubusson by private manufacturers are not, in general, well paid.

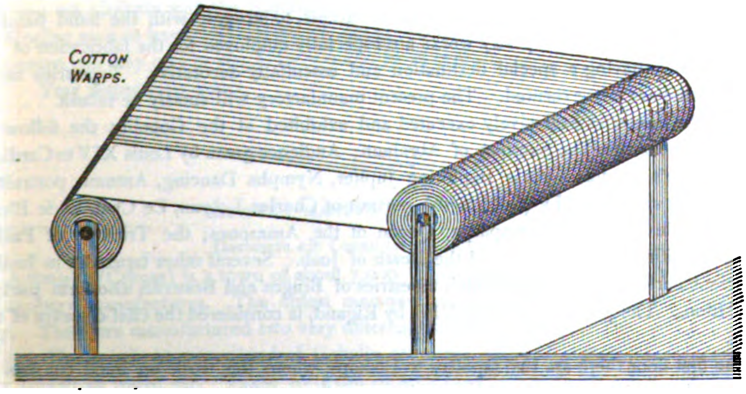
The time required to manufacture an ordinary tapestry (ordinary dimensions) at the Gobelin or Beauvais manufactories is, on an average, three years, while at Aubusson a few months are sufficient. Hand looms only are employed.

GEORGE DEBRAY,
Special Expert.

UNITED STATES CONSULATE-GENERAL,
Paris, May 5, 1892.



Gobelin and Beauvais hand loom. (Perpendicular.)



Aubusson hand loom. (Horizontal).

HISTORY OF THE GOBELINS.

[Inclosure 2 in Consul-General King's report.]

The "Manufacture des Gobelins" was established in the year 1607 by Henry IV, in the scarlet dye works founded by Jehan Gobelin, on the banks of the River Bièvre, in the fifteenth century. After an exploitation of more than fifty years, it was bought in 1662 by Louis XIV, who, on the advice of Colbert, established the "Manufacture des Meubles de la Couronne." Eight hundred workmen were then employed, three hundred of whom lived on the premises. The most celebrated artists conducted the work, either from their own designs or plans or from the designs of the best Italian masters.

Besides the tapestry workers of the high and low warp and artists in mosaic working in the Florentine style, cabinetmakers and goldsmiths were also employed side by side with studios of the statuaries, the latter working especially for Versailles.

After the reign of Louis XIV the Gobelins only manufactured tapestry. The tapestries were twisted at Chaillot, in the building of a large soap factory named "la Savonnerie" (which no longer exists) and in which Louis XIV had established a workshop to occupy the children of the hospitals. In 1826 the works of the Savonnerie were transferred to the Gobelins, where they replaced the works of low warp, which were taken to the manufactory of Beauvais.

A large part of the buildings were burnt down during the Commune, on the 25th of May, 1871 (civil war in Paris). The exhibition rooms, with their contents, were consumed.

The celebrated manufactory of the Gobelins of dyeing and carpets at Paris takes its name from Jehan and Gilles Gobelin, celebrated dyers, who, about 1450, had established on the River Bièvre dye works in order to perfect the application of the scarlet color. Their factory soon acquired a great renown. Jehan Gobelin, the head of the family, died in 1476. The establishment was bought by Louis XIV and transformed in 1667 into a manufactory of furniture for the Crown, which furniture was executed with the greatest taste and luxury. In consequence of the great financial distress of the Crown in 1694, these clever workmen were sent away, and when the Gobelins were reopened several years after the work was restricted to the fabrication of tapestry for crowned heads and eminent personages.

The national manufactory of the Gobelins is now divided into three distinct sections—the dye shops, tapestry shops, and carpet workshops. The dye shops or works produce not only every kind of color, but twenty to thirty different shades of each. Owing to the labors of the eminent chemist M. Chevreuil, the colors produced are perfectly adherent.

The execution of the work is so slow that an artist can not produce in one year more than one-fourth of a square yard. In 1826 the manufacture of carpets was added to tapestry. These carpets are remarkable for their softness and the evenness of their tissue. Some of these works take from five to ten years to execute and cost from 60,000 to 150,000 francs.

After having made several trials, not without success, to struggle with the hand painting by reproducing pictures, the tapestry works are especially employed for the fabrication of decorative hangings having a special destination and essentially decorative. Tapestries made in velvety tissue are also executed. The present manufactory will shortly be rebuilt.

Among the tapestries exclusively executed and exhibited at the Gobelins the following are worthy of remark: The Sacrifice of Abraham; Audience given by Louis XIV to Cardinal Chigi, the Pope's Legate; Cybele Imploring Jupiter, Nymphs Dancing, Autumn, portrait of Colbert, portrait of Louis XIV (full length), portrait of Charles Lebrun, Le Château de Blois; Marriage of Alexander and Campaspe, Queen of the Amazones; the Triumph of Pallas, Louis XIV Visiting the Gobelins, and the Death of Joab. Several other tapestries in Indian dyes, ancient Persian carpets, and Dutch tapestries of Bruges and Beauvais also form part of this exhibition. The portrait of Louis XIV, by Rigaud, is considered the chef-d'œuvre of the Gobelins.

On the first floor there are two tapestry workshops, where the work on hand consists of hangings, which, being composed of several large pieces, will remain a long time on the frames. They are destined to decorate a drawing room of the Palais de l'Elysée, a room of the National Library, and the staircase of the Senate at the Luxembourg.

On the left-hand side of the rez de chaussée and opposite the exhibition rooms are the workshops of the "Savonnerie," where they have on hand the hangings for the Pantheon, for a saloon of the Elysée, and the vestibule of the National Library.

TAPESTRY MANUFACTURE AT NÎMES.

[Inclosure 3 in Consul-General King's report.]

The manufacture of silk tapestry at Nîmes has been gradually going down ever since 1750; but other industries have arisen to take its place, especially carpet-making (employing 600 to 800 hands), shawl and tartan making (1,800 hands), silk neckerchiefs (800 hands), as well as the following articles in silk: Stay and other laces, braids, sewing thread, gloves, and silk twist. The total number of hands employed in these industries amounts to 5,450.

Nîmes also produces "tapis velonté" for furniture, in the manufacture of which certain processes are made use of which are the invention of the Nîmes manufacturers, and of which they retain the monopoly.

The chief feature which distinguishes the tissues of all sorts manufactured at Nîmes, fine or coarse, from those produced by the looms at Aubusson is their entirely mechanical production. When once the design is established and the threads are arranged, any number of copies may be struck off, thus enabling the production to be sold at an infinitely lower rate than designs which have to be laboriously copied by hand for each reproduction.

CHARLES B. TRAIL,
Consul.

UNITED STATES CONSULATE,
Marseilles, May 11, 1892.

DR. PERRY TO CONSUL TRAIL.

NÎMES, *May 5.*

DEAR SIR: I have not been able to find out much about the manufacture of tapestry here, for the reason that the business, which was formerly a very important one, and especially with the United States, is slowly dying out. There are only three houses now, and they sell their goods at Paris.

The carpet business was also a flourishing one, but since the protective tariff is in vogue they can not compete with the American article.

Hoping soon to have the pleasure of seeing you here, and presenting you to any of these gentlemen you may care to see, believe me to be as ever,

Very respectfully yours,

F. E. PERRY.

TAPESTRY MANUFACTURE AT AUBUSSON.

[Inclosure 4 in Consul-General King's report.]

Aubusson (Creuse) is a town of about 7,000 inhabitants. The chief industry consists in the tapestry manufactures. The oldest manufactories were established in the fifteenth century. There are manufactured two very different kinds of tapestry.

(1) The artistic tapestry (kind of Gobelin tapestry), used for armchairs, furniture, hangings affixed to walls, etc. These sorts can be seen exhibited at Messrs. Braquenié Brothers, 16 rue Vivienne, Paris. The manufacturers of these artistic works are MM. Braquenié frères,

Duplant et Hamot, Bernaud, Vve. Tabart, Tricot, Tramicheek, Gaunaud. The prices are from $15 to $100 per square meter, according to the shades and fineness of designs. About 2,000 workmen are occupied in the production, the wages being 80 cents per day.

(2) The ordinary tapestry (carpets of all kinds) for floors. The leading manufacturers are MM. Croc père et fils et Jorrand (house in Paris at No. 12 rue de Cléry), and MM. Sallandrouze Brothers. These two manufactories do mechanical weaving (Jacquard frames). The carpets are worth, according to quality, from 75 cents to $3 per square meter. The number of workmen is 1,900.

A. JOUHANNAUD,
Vice-Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Limoges, April 20, 1892.

HOPS IN BADEN, RHEIN-HESSEN, AND THE PALATINATE.

REPORT BY CONSUL WINTER, OF MANNHEIM.

For the year 1891 there were 7,351 acres devoted to hop culture, being 2,728 hectares in Baden, 47 hectares in Rhein-Hessen, and 201 hectares in the Palatinate (Rhein Pfalz); total, 2,976 hectares (1 hectare=2.47 acres).

The years 1890 and 1889 were practically the same as to area.

The total weight of the hop crop harvested on this area in 1891 was 2,950,000 kilograms (6,490,000 pounds).

Though the area devoted to hops was the same in 1890, the quantity and quality were not equal to 1891. The quantity in 1890 was 5,115,440 pounds.

The area and the quantity and quality of the hop crop of 1889 were substantially the same as that of 1890.

There was no part of the crop of 1891 in the hands of growers or farmers on January 1, 1892, and very little of it in the hands of dealers at the beginning of this year.

On January 1, 1891, there was still a small stock in the hands of growers; about one-fourth of the crop was in the hands of farmers and dealers.

The hops grown in these respective districts are consumed at home, practically very little being exported to other parts or countries.

Hops are imported from Austria (Bohemia) in considerable quantity and consumed by the large brewing establishments of Baden and the Palatinate. About the same quantity was imported in the year 1891 as in the preceding year, the amount of the import showing, in fact, no material change for some years past.

Prices in Baden were as follows: In September, 1891, 70 to 90 marks per 50 kilograms, according to quality, the highest price, 90 marks, being paid for prime quality; on January 1, 1892, prices were up to 120 marks per 50 kilograms for average quality and 130 marks for prime quality.

The following are the addresses of the largest planters or growers of hops: Burgermeister C. Mechling, Schwetzingen, Baden, Germany; Altburgermeister Breiter, Sandhausen, bie Heidelberg, Baden, Germany; Dr.

Herdt, Heidelberg, Baden, Germany. The latter's hop farm is in Hessen, near Keppelheim.

The leading hop merchants are Messrs. Mayer & Dinkel, Mayer & Lerna, and Oppenheimer & Co., of Mannheim, Baden, Germany.

I am largely indebted for the foregoing statistics to Messrs. Mayer & Dinkel, hop merchants and exporters of Mannheim, an enterprising and reliable firm which does considerable export business to the United States.

The hop culture is carried on by small farmers, who cultivate but a few acres; large plantations, like some to be found in the United States, are not to be even thought of in Germany. Another difference is in the harvesting and preparing of the crop for market. The German hop-grower only dries his hops before placing them on the market, while the American hop-grower dries them and packs them up before offering his crop for sale. The German hop merchant purchases the crop in the field, and, though the hops are dried or cured, the buyer must do his own packing preparatory to shipment.

JNO. F. WINTER,
Consul.

UNITED STATES CONSULATE,
Mannheim, May 11, 1892.

THE CAMPHOR TRADE OF JAPAN.

REPORT BY CONSUL SMITHERS, OF OSAKA AND HIOGO.

The camphor tree, from which the resinous gum is distilled, is a species of the laurel, and is found in the provinces of Tosa, Hiuga, and Satsuma, in the south of Japan. Large groves of the trees are owned by the Japanese Government, the wood being very desirable for shipbuilding. The districts in which the camphor tree is found are mountainous and situated far from the sea. No reliable information can be obtained as to the cost of producing the gum before being transported in junks to Hiogo. The peasants who engage in distilling the roots and branches of the trees are said to be poor and employ the rudest machinery.

The market value of crude camphor gum and of oil of camphor per picul (133⅓ pounds) during the past year was as follows:

Drained	$38.25
Wet	37.00
Old dry	43.50
Average	36.50
Camphor oil	5.25

The highest and lowest prices during the same period were as follows:

Highest	$40.00
Lowest	33.00

Camphor gum is exported in tubs measuring about 6½ cubic feet; oil in kerosene tins and cases. The grades are from old dry down to new wet, and the various grades depend upon the quantity of adulteration. In oil there are two grades—white and brown.

Adulteration is practiced for the most part by adding water and oil just as far as the buyer will tolerate. In some cases 20 pounds of water will run out of a tub in twelve hours. The unadulterated article, known as the good old dry, can sometimes be bought. The only system of tests in determining value of the different qualities is by burning and by absolute spirit. The percentage of pure camphor which the crude yields when refined varies according to the quality of the crude. The average percentage of gum produced from the wood as compared with the original weight of the wood can not be accurately ascertained here, the only foreigner known to have visited the camphor districts having declined to furnish any information on the subject.

To importers in the United States who wish to obtain accurate knowledge of the camphor industry in all its details, including the purchase and shipment of the article, I would specially recommend that a competent agent be sent to Japan to visit the camphor districts and study the process of manufacture, packing, etc.

Statistics of the export trade of camphor from Hiogo during the years 1889–'91 are as follows, in catties of 1⅓ pounds each:

Table showing the exports of camphor from Hiogo.

Whither exported.	Quantity.		
	1889.	1890.	1891.
	Catties.	*Catties.*	*Catties.*
Europe (countries not specified)	155,100	683,400	1,777,300
London	1,028,700	1,246,500	335,600
Germany	1,128,200	490,700	209,200
United States	1,251,600	175,000	1,277,000
China	340,600	855,400	51,900
France	207,400	265,100	199,400
Total	4,111,500	3,716,100	3,850,400

Table showing the exports from 1880 to 1891.

Year.	Quantity.	Year.	Quantity.
	Catties.		*Catties.*
1880	2,022,000	1886	3,495,200
1881	2,134,400	1887	4,816,400
1882	3,161,000	1888	2,839,400
1883	3,566,000	1889	4,111,500
1884	2,990,000	1890	3,716,100
1885	2,220,700	1891	3,850,400

E. J. SMITHERS,
Consul.

UNITED STATES CONSULATE,
Osaka and Hiogo, May 5, 1892.

MANUFACTURE OF CAMPHOR.*

REPORT BY CONSUL JONES, OF NAGASAKI.

The manufacture of camphor is an important industry on the island of Kiu Shiu (Kew Shew).

From the port of Nagasaki there were exported in the year 1882 15,186.18 piculs, valued at $277,792. A picul is 133⅓ pounds. From other ports of the island not yet open to foreign trade a large quantity was shipped by native merchants in native vessels to Shanghai, in China, and Hongkong, whence it finds its way to India and England; little or none of it is exported to the United States. The camphor tree grows abundantly all over this portion of Japan. It is found alike on high elevations and in the valleys and lowlands. It is a hardy, vigorous, long-lived tree, and flourishes in all situations.

Many of these trees attain an enormous size. There are a number in the vicinity of Nagasaki which measure 10 and 12 feet in diameter. The ancient temple of Osuwa, at Nagasaki, is situated in a magnificent grove of many hundred grand old camphor trees, which are of great age and size, and are still beautiful and vigorous. I am told that there are trees at other places in Kiu Shiu measuring as much as 20 feet in diameter. The body or trunk of the tree usually runs up 20 and 30 feet without limbs, then branching out in all directions, forming a well-proportioned, beautiful tree, ever green and very ornamental.

The leaf is small, elliptical in shape, slightly serrated, and of a vivid dark-green color all the year round, except for a week or two in the early spring, when the young leaves are of a delicate, tender green. The seeds or berries grow in clusters and resemble black currants in size and appearance. The wood is used for many purposes, its fine grain rendering it especially valuable for cabinetwork, while it is used also for shipbuilding. The roots make excellent knees for ships.

I have sent many seeds of the camphor tree to the United States, in the hope of adding to our own arboriculture.

In the manufacture of camphor the tree is necessarily destroyed, but, by a stringent law of the land, another is planted in its stead. The simple method of manufacture employed by the natives is as follows:

The tree is felled to the earth and cut into small pieces, or, more properly speaking, into chips.

A large metal pot is partially filled with water and placed over a slow fire. A wooden tub is fitted to the top of the pot, and the chips of camphor wood are placed in this. The bottom of the tub is perforated, so as to permit the steam to pass up among the chips.

A steam-tight cover is fitted on the tub. From this tub a bamboo pipe leads to another tub, through which the inclosed steam, the generated camphor, and oil flow. This second tub is connected in like manner with a third.

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The third tub is divided into two compartments, one above the other, the dividing floor being perforated with small holes, to allow the water and oil to pass to the lower compartment. The upper compartment is supplied with a layer of straw, which catches and holds the camphor in crystal in deposit as it passes to the cooling process. The camphor is then separated from the straw, packed in wooden tubs of 133⅓ pounds each, and is ready for market.

After each boiling the water runs off through a faucet, leaving the oil, which is used by the natives for illuminating and other purposes.

A. C. JONES,
Consul.

UNITED STATES CONSULATE,
Nagasaki, March 26, 1883.

ELECTRICITY AND CONDUITS IN HAVRE.

REPORT BY CONSUL WILLIAMS.

Replying to Department circular of June 9, 1891, in relation to electric power, conduits, etc., I need to explain that my delay has been caused by the unfinished state of that enterprise here, the plant therefor having been but recently erected.

Answers to several questions asked of the engineer were delivered to me to-day, and I hasten to transmit.

It is my belief that knowledge of what is here at Havre will not be of value further than to show its insignificance as contrasted with kindred enterprises in American cities of like population and importance. Seemingly Europe died in giving birth to America.

(1) The capital of the electric company is 200,000 francs, or $38,600.

(2) It supplies at present no street or other public lights.

(3) It supplies 14,000 private lights of from 10 to 16 candle power.

(4) Also, to the docks, 14 elevated lights, 82 feet in elevation, of 600-candle power each.

(5) Private lights for stores, markets, etc., are of 300-candle power.

(6) The company's plant is of 1,500-horse power.

(7) The cities of Caen, Rennes, and Fécamp, in my consular district, also have electric plants, but neither in those cities nor at Havre is electricity used as a motive power.

(8) The length of underground conduits at Havre is 14 kilometers (8.69 miles) and are of diameters varied by sections from the plant to the outer terminus, there being 9 sections with diameters as follows, viz, 30, 25, 20, 16, 13, 11, 10, 8, and 7 millimeters, respectively. The conduit is of copper insulated with gutta-percha, then banded or incased in a wrap of metallic cloth and coated with coal tar. Thus prepared it is buried about 18 inches underground in a very frail and cheap case of wood, which, within and with-

out, is also coated with coal tar. The perfection of street drainage here doubtless makes such incasing ample for preservation.

(9) The system used is that of Ferenti.

(10) The business is that of a limited corporation.

(11) Perhaps the features of this enterprise most worthy of comment are the onerous and multiplied tax burdens under which it rests, and which are a fair sample of those of every business, limited or large, in France. For example, this company pays the city as taxes: On every ton of coal consumed, 96 cents; $19.30 per year for each kilometer (14) of its conduit; 5 per cent per year of gross receipts. The company is required to supply light to the city at two-thirds of the regular price for public buildings and at half the regular price for streets, parks, etc. Aside from the above burdens the company pays annual licenses to both the Government and the city. The total of this license is $298.80, 63 per cent of which goes to the General Government, 12 per cent to the departmental government, and 21 per cent to the communal government. The company also pays a rent on all buildings, engines, boilers, dynamos, conduits, etc. This rent is somewhat similar to ground rent, and is paid as an added tax, regardless of the fact that the company paying this rent owns the entire property.

The above notes refer to special burdens, and are to be added to such general and usual taxes as may be and are imposed upon property, incomes, rents, etc.

The electric company has no control over or connection with either the telegraph or telephone. There are 667 telephones in Havre.

O. F. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Havre, May 18, 1892.

CACAO IN ECUADOR.

REPORT BY CONSUL-GENERAL SORSBY, OF GUAYAQUIL.

The preparation for planting the cacao bean consists in clearing the land of all underbrush and trees by cutting and burning, which is commenced about July and pushed until the rainy season, beginning in November, December, or January. After the ground has been cleared of all débris, it is marked in rows about 3 yards wide, and in each row sticks are driven about 3 yards apart, and at the foot of each stick a hole about 3 inches deep is made, into which are put three or four beans, over which is thrown sufficient earth to cover them. The next step is to plant rice, bananas, or other cereals or plants of rapid growth and shade to protect the young cacao plant from the sun's rays. It is usual to thus protect the plant for three or four years.

The tree matures in six years, but begins bearing usually at four, after which the only care necessary is to cut out the weeds twice a year; and this is the only cultivation ever given the cacao tree in Ecuador.

An average of one thousand trees to the cuadra (about 1¼ acres) are planted. The life of the tree is about 100 years, the height about 15 feet; the trunk is clear of branches for 5 or 6 feet from the ground, and the foliage is a rich green and abundant.

A heavy, deep, vegetable soil is required, because the cacao tree has but one main root or taproot, which grows straight down 7 or 8 feet. If this main root or taproot strikes a clay or gravel formation the usefulness of the tree ceases.

The total cost of the purchase and preparation of the land, purchase and planting of the seed bean, and caring for the plant until maturity or until it has reached a safe stage will not exceed $300 per thousand trees.

The laborers to look after and care for the trees and to plant cereals or plants to shade the tree while young usually have the privilege of living upon and cultivating the land free of rent; there is not, however, any fixed rule. If the owner personally supervises the work of the estate, the labor is employed by the day, month, or year, and the revenue from the cultivation of the land—the planting of cereals or plants to protect the young cacao plant—belongs to the owner.

The manner of gathering the cacao is by cutting the pods from the tree with a large knife fastened to the end of a cane or pole. With these knives one set of laborers go ahead cutting off the pods, another follows gathering and throwing them into piles, another follows cutting the pods open, another follows scooping out the beans, and, finally, another follows with mules to carry the beans to an open, cleaned, and dry place, where they are dried by being spread in the sun for about six days. It is estimated that the total cost of gathering and preparing the cacao for the market does not exceed $3 per 100 pounds.

After gathering and drying, the bean is sent to Guayaquil in bulk or in sacks upon rafts, in canoes, or by steamers, at a minimum rate of freight, where it is disposed of by the planter to an exporter or commission merchant. After reaching Guayaquil the bean undergoes more treatment. It is unloaded from the rafts, canoes, or steamers by the laborers and taken to the warehouses (*bodegas*), where it is first cleaned by passing through a large sieve manipulated by two men. By this method the bean is cleared of the dust and dirt, leaving only the veins and hulls, which are picked out by hand, leaving, finally, the cleaned bean, which is spread in thin layers in the sun for four or five hours, when it is ready for sacking and shipment.

It is estimated that the loss in weight from handling after arrival at Guayaquil or final port of shipment is about 5 per cent, which is chargeable to the purchaser abroad, as the exporter, as a rule, buys only upon orders. In fact, every charge, from the time the cacao arrives at Guayaquil from the estate until it is placed on board of the steamer for shipment abroad, is paid by the foreign purchaser.

A commission of 2½ to 4 per cent, which constitutes the visible profit of the exporter or commission house, is charged to the producer abroad.

All of the refuse from cleaning the cacao, viz, the dust, pelotas, and dried veins, has a market value and goes to swell the profits of the exporter or commission house here. The fine dust passing through the sieve is worth $2 per 100 pounds; the hulls, or pelotas, $4 per 100 pounds; and the veins, used for food for horses and mules, $1 per bag.

There are three grades of cacao grown in Ecuador, as follows:

The "Arriba," the first grade, is grown on the Guayas River and its tributaries above Guayaquil. This is the best grade, and represents about 65 per cent of the whole crop, the main season for which extends from January to July.

The "Balao," the second grade, is grown below Guayaquil in a country adjacent to Port Balao, from which this grade derives its name, and equals about 10 per cent of the whole crop, the main season for which is from July to December.

The "Machala," the third grade, is grown still further south, adjacent to the port of Machala, and equals about 15 per cent of the whole crop, the principal season for which is the same as that of the second grade, Balao—from July to December.

The cacao district of Ecuador, as at present represented, embraces a radius of about 80 miles, with the city of Guayaquil as its base, though the best quality of cacao and the greatest yield per tree I have seen in the Republic was in the northern part of the province of Esmeraldas (where the placer gold regions are), where no attention is given to its culture; but the life of the plant is said to be of short duration, because the depth of the soil is not sufficient.

While it is true that cacao has its seasons, yet a little of each class is gathered and marketed outside of their respective seasons. That gathered after the principal crop is called "Rebuscoz," or gleanings, and often is as good as, or better than, that of the main season.

There are still two other classes or grades of cacao grown in Ecuador: One known as the "Caraquez," grown in the province of the port Bahia de Caraquez, on the coast north of Guayaquil, which is about the same in quality as the Machala; and the other is grown near the port of Esmeraldas, on the coast north of Bahia de Caraquez, and is superior to all other cacao produced in Ecuador, though the production is insignificant. The two latter grades represent about 10 per cent of the total.

In round numbers there are 30,000,000 trees, and the annual production is from 28,000,000 to 30,000,000 pounds of cacao.

The value of a cacao estate is based upon the number of trees thereon, and not upon the amount of land embraced therein. The nominal value of a tree is 1 sucre (equivalent to 70 cents according to present rate of exchange). This is the nominal value—the price at which they can be purchased when the owner seeks a buyer, which is a rare occurrence; when the purchaser seeks the owner, he may have to pay as high as 2 sucres per tree. As a rule, cacao estates are not in the market. Taxes are nominal, the crop uniform, the profits great and sure, the labor cheap and reliable, and the immediate future free from danger of overproduction.

The methods of cultivating the tree and gathering and preparing the bean for market are difficult, tedious, and crude, everything being done by hand and nothing by machinery.

From the moment the pod is cut until the bean is sacked and embarked the least possible time is lost. Everything is pushed as rapidly as the habits and customs of the people admit, and it may be safely assumed that were a little study and more attention given the method of cleaning and curing the bean could be immensely improved in quality.

Ten dollars an acre would be the maximum price of lands suitable for cacao culture, $25 an acre the maximum cost of clearing and preparing, and $200 the maximum cost per acre of 700 trees—planting and caring for till maturity. Upon this basis an estate of 200 acres would cost:

Land	$2,000
Clearing and cleaning	5,000
Planting and caring for	40,000
Interest on capital at 10 per cent for five years (which is an overestimate, because the $40,000 need not be paid, except in installments, amounting to, say, $8,000 or $10,000 per annum)	23,500
Total	70,500
Minimum market value of 140,000 trees at 70 cents each	98,000
Clear gain	27,500

The profits arising from production may be determined upon a basis of half a pound per tree for the fifth year and 1 pound thereafter, by the following tables, compiled by Messrs. Martin Reinberg & Co., Guayaquil, exporters and commission merchants of the highest standing and responsibility. By these tables it will be noted that the yield of the season, whether short or full, affects the value of the cacao, the market value rising and falling in sympathy with good or bad seasons; and what is lost in the yield is gained in the price. Thus it is that, with a poor crop in 1891 and unfavorable reports for 1892, the price to-day is $18 per quintal for the best, or Arriba, grade. This state of affairs—the close sympathy of price with yield—is easily accounted for when it is borne in mind that the world's product and supply is inadequate to the demand.

The estimate of the cost of an estate of 200 acres, it may be well to repeat, is a maximum estimate, it being possible under favorable circumstances or by close personal attention and management to make the amount stated in dollars represent sucres.

Table showing quantity of cacao received at Guayaquil during the past four years.

Month.	Arriba.	Balao.	Machala.	Total.
1888.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
January	617,381	41,430	54,033	712,834
February	798,561	3,717	5,489	807,767
March	3,112,161	58,984	14,181	3,185,326
April	4,341,891	155,292	134,092	4,631,275
May	4,427,881	411,502	517,964	5,357,347
June	1,735,769	341,327	784,179	2,861,275
July	1,418,911	648,160	1,206,682	3,273,753
August	1,062,881	717,304	902,688	2,782,873
September	833,219	187,031	280,439	1,300,689
October	370,298	197,737	372,478	940,513
November	221,522	180,941	405,791	808,254
December	449,123	148,511	412,568	1,010,202
Total	19,480,598	3,091,926	5,090,604	27,672,128
1889.				
January	1,184,800	118,634	214,999	5,184,831
February	1,814,825	64,941	97,967	2,057,703
March	3,075,318	61,345	61,373	3,198,036
April	3,252,106	168,118	130,835	3,551,059
May	2,801,914	470,054	397,725	3,669,693
June	1,328,214	336,615	434,802	2,099,631
July	724,626	408,838	780,016	1,913,480
August	324,076	469,600	915,379	1,709,135
September	225,286	383,075	604,210	1,212,571
October	217,426	232,097	436,296	885,819
November	499,470	153,944	367,415	1,020,829
December	1,209,451	298,032	293,382	1,800,865
Total	16,737,512	3,165,393	4,734,339	24,637,304
1890.				
January	2,052,400	349,800	268,500	2,670,700
February	1,797,702	116,942	124,781	2,039,425
March	3,696,970	186,435	100,755	4,074,161
April	3,990,819	131,385	371,116	4,493,320
May	4,200,899	404,315	582,785	5,187,999
June	2,166,948	198,176	286,217	2,601,341
July	1,680,566	601,473	1,278,970	3,601,009
August	1,566,596	564,484	1,077,062	3,208,142
September	1,292,377	441,565	651,633	2,385,575
October	1,280,964	944,239	752,011	2,987,214
November	826,705	540,277	739,362	2,106,344
December	538,625	327,475	470,440	1,336,540
Total	25,001,572	4,596,566	6,793,632	36,391,770
1891.				
January	524,237	187,739	188,982	900,858
February	343,548	80,708	148,813	576,059
March	1,263,248	35,149	92,571	1,390,968
April	3,860,536	166,096	155,850	4,183,282
May	4,162,305	408,996	529,291	5,100,592
June	1,370,247	378,538	619,036	2,367,021
July	538,970	344,397	727,400	1,610,767
August	576,104	438,204	865,086	1,880,294
September	482,674	256,233	655,692	1,191,599
October	213,402	162,406	255,893	632,721
November	202,252	140,203	175,352	517,807
December	513,183	89,854	125,627	728,664
Total	15,050,696	2,690,343	4,339,593	21,080,632

Table showing entries of all grades of cacao into Guayaquil during the last fifty-two years.

Year.	Quantity.	Year.	Quantity.
	Quintals.		*Quintals.*
1840	142,669	1867	197,260
1841	114,102	1868	212,355
1842	67,090	1869	173,492
1843	154,634	1870	233,144
1844	85,741	1871	172,422
1845	97,290	1872	187,238
1846	112,020	1873	245,969
1847	120,736	1874	247,493
1848	210,074	1875	103,500
1849	142,347	1876	220,993
1850	110,660	1877	205,307
1851	95,670	1878	103,309
1852	139,655	1879	315,341
1853	132,430	1880	338,802
1854	109,921	1881	223,082
1855	150,897	1882	189,046
1856	133,736	1883	150,105
1857	147,659	1884	180,100
1858	198,187	1885	224,588
1859	136,187	1886	384,760
1860	167,617	1887	334,170
1861	186,781	1888	276,721
1862	160,261	1889	246,373
1863	164,011	1890	363,907
1864	114,506	1891	210,806
1865	142,671		
1866	225,077	Total	9,511,932

Table showing the average price of cacao and bank rate of exchange by months for the past five years.

Month.	Price of cacao.			Premium of exchange.			
	Arriba.	Balao.	Machala.	New York.*	London.†	Paris.†	Ham-burg.†
1887.	*Pesos.*	*Pesos.*	*Pesos.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
January	18.20	17.00	16.00	72.2	66	65	64
February	18.20	17.00	16.00	70	66	65	64
March	19.00	17.00	16.20	70	66	65	64
April	19.20	18.00	17.00	72.2	65	64	63
May	21.20	19.00	18.00	70	64.2	63.2	62.2
June	25.00	20.00	19.00	67	63.2	62.2	61.2
July	23.20	19.20	18.20	70	63	62	61
August	32.20	19.20	18.20	75	66.2	64.2	63 2
September	23.00	18.20	17.20	70	66	65	64
October	23.00	19.20	17.00	72.2	65.2	64.2	63.2
November	22.00	19.20	18.20	71	65.2	64.2	63
December	18.00	17.20	16.00	71	64	63	62
1888.							
January	18.20	17.20	16.20	72.2	65.2	64.2	61.2
February	18.20	17.20	16.20	71.2	65	63.2	62.2
March	22.20	19.00	18.00	70	62.2	61.2	60
April	23.00	19.20	18.20	67.2	59.2	58	57
May	22.00	18.20	17.20	68.2	60.2	59	58
June	22.00	19.00	18.00	75	67	66	65
July	21.00	19.00	18.00	76	69.2	68	67
August	20.20	18.20	18.00	77	71.2	70.2	69.2

*Sixty days. †Ninety days.

Table showing the average price of cacao and bank rate of exchange, etc.—Continued.

Month.	Price of cacao.			Premium of exchange.			
	Arriba.	Balao.	Machala.	New York.	London.	Paris.	Hamburg.
1888—Continued.	*Pesos.*	*Pesos.*	*Pesos.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
September	21.00	18.20	18.00	77	73	72	71
October	21.20	19.20	18.20	78	73	72	71
November	22.20	19.20	18.20	79	70.2	69.2	68.2
December	22.20	19.20	18.00	76	70.2	69.2	68.2
1889.							
January	22.20	19.20	18.20	78.2	74.2	73	72
February	23.20	20.00	19.00	77.2	72.2	71	70
March	23.00	20.00	19.00	75	70	69	68
April	23.00	20.00	19.00	77	72	71	70
May	23.00	20.00	19.00	79.2	73	72	70.2
June	23.00	20.00	19.00	78.2	72.2	71	70
July	24.20	20.20	19.20	83	77.2	76	75
August	25.00	20.20	19.20	73	78	77	75.2
September	25.00	21.20	20.20	85.2	80	76	77.2
October	25.00	21.20	20.20	87	81	80	79
November	23.20	21.00	20.00	87.2	82	80.3	79.2
December	22.00	19.20	18.20	82.2	75	74	72.2
1890.							
January	19.00	18.00	17.20	79	75	73.2	72
February	21.30	19.00	18.00	81	74.2	73	71.2
March	22.00	19.00	18.00	81	74.2	73	71.2
April	23.00	19.20	18.20	74	66.2	65	63.2
May	24.00	20.00	19.00	71.2	63.2	62	60.2
June	23.20	19.20	18.20	70	62.2	61	59.2
July	23.00	19.00	18.00	68	60.2	59	57.2
August	20.20	17.00	16.00	62.2	56.2	55	53.2
September	17.20	15.20	14.20	47.2	41	39.2	38
October	16.00	15.20	15.00	49.2	45	43.2	41
November	16.00	15.20	15.00	53	49	47.2	46
December	16.00	15.00	14.20	63	55.2	53	52.2
1891.							
January	16.00	15.00	14.20	66.2	61	59.2	58
February	16.20	15.20	15.00	70	63.2	62.2	61
March	27.00	20.00	18.20	74.2	66.2	65	63.2
April	27.00	20.00	18.20	75.2	67.2	66	65
May	26.20	19.20	18.20	68.2	60.2	59.2	58.2
June	27.00	19.20	18.20	75	68	66.2	65.2
July	29.00	22.00	19.00	74	68	66.2	65.2
August	29.20	23.20	22.00	78.2	71.2	70.2	69.2
September	27.20	23.00	21.20	80	73.2	72.2	71.2
October	24.20	22.00	20.20	81.2	75	73.2	72
November	24.00	22.00	20.20	84.2	79.2	78	76.2
December	24.20	21.20	20.20	82.2	77	75.2	74

WILLIAM B. SORSBY,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Guayaquil, May 21, 1892.

No. 144——5.

TRADE OF REVEL.

REPORT BY CONSULAR AGENT VON GLEHN.

I have the honor to transmit to you my annual report for the year 1891.

The statistics just published of the trade of this port for the year show a decrease of about $9,300,000 on imports and of $1,000,000 on exports, or a total decrease of $10,300,000 as compared with the preceding year, a result which was to be expected, when taking into consideration that the entire crops of the southern provinces of Russia were destroyed, causing a famine in that part of Russia during the latter half of the year, which, of course, has reacted on the trade of the whole Empire, of which the statistics give a clear but regrettable evidence. Importers had not only to contend with diminished sales, but also with higher exchange ruling towards the second half of the year, and exports of grain and seeds were entirely checked by the ukases prohibiting all exports of breadstuffs since the famine of the south became the talk of the day.

This naturally caused a fall in the value of the paper currency, *i. e.*, a rise in exchange, which would doubtless have been much more considerable if the imports had kept up on the same level as in previous years. To-day 1 gold ruble is equal to 1.56 rubles in paper currency, while last year at this period it was only 1.35 rubles. Under these circumstances the past year has been one of the worst for the trade of this port for the last twenty years, as imports amount to only about one-third and exports to about three-fourths of what they were in 1880, the year of the highest prosperity this port has had.

The following table shows the total value of imports and exports during the last six years:

Year.	Imports.	Exports.
1886	$21,835,316	$5,051,362
1887	28,634,264	12,625,821
1888	22,072,564	10,124,126
1889	22,707,978	7,317,331
1890	27,170,003	10,103,688
1891	17,903,539	9,187,738

IMPORTS.

Cotton imports from the United States show a decrease of about 51,000,000 pounds as compared with the preceding year and are 70,000,000 pounds behind those of 1887, as the following figures show:

	Pounds.
1887	150,221,376
1888	80,163,180
1889	106,470,288
1890	132,037,524
1891	80,688,456

All imports from the United States came forward in vessels under continental flags, no American vessels having entered or left this port since July, 1886. There arrived direct from the United States in all 11 vessels, of an aggregate tonnage of 12,568 registered tons, against 22 vessels, of 24,585 registered tons, in 1890 and 26 vessels, of 30,676 registered tons, in 1889, from which it appears that the indirect lines of steamers via Hull and Hamburg absorb more and more the carrying trade to this port from the United States.

Table showing the value of imports and whence they originated for the last five years.

Countries.	1887.	1888.	1889.	1890.	1891.
United States	$9,386,743	$5,174,890	$8,199,427	$7,161,877	$3,969,437
Great Britain	8,928,782	10,432,328	8,614,583	9,905,576	6,954,639
Germany	6,502,459	4,055,298	5,874,764	8,655,576	6,281,711
France	2,135,590	4,872	1,968	74,855	180,880
Denmark	923,554	665,008	273,473	210,193	50,167
Netherlands	614,831	636,174	551,697	707,977	312,772
Sweden	280,557	185,692	57,767	131,820	45,760
Norway	100,775	93,575	119,612	101,207	102,785
Spain	98,341	5,525	1,420	....	3,416
Belgium	10,497	73,412	14,440	21,795	....
Italy	2,860	20,857	10,680	147,910	1,665
Portugal	....	....	367	1,215	190
Brazil	234,004	60,858	....	....	....
Africa, etc	....	....	....	....	165
Total	29,219,050	21,408,993	23,720,201	27,170,003	17,903,539

Table showing the principal articles imported during the last five years.

Articles.	1887.	1888.	1889.	1890.	1891.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*	*Pounds.*
Cotton	150,221,376	80,532,204	106,470,288	132,037,524	80,688,456
Yarns	3,325,788	2,356,380	1,720,188	1,442,772	859,860
Oil	1,369,548	1,364,904	1,251,864	3,400,956	1,706,508
Salt:					
Foreign	2,090,628	352,188	312,876	418,536	330,372
From the Crimea	43,398,108	30,273,480	56,140,200	57,694,032	42,700,176
Herrings, salted	5,306,112	6,442,344	8,534,196	6,224,400	10,157,868
Wine in casks	390,888	559,296	340,488	341,640	730,584
Fruits	1,084,716	607,140	823,896	2,230,776	2,169,648
Coffee	997,020	1,006,372	775,764	1,824,660	1,236,024
Tea	124,488	210,168	97,200	255,240	204,372
Rice	56,032	116,100	95,796	122,508	160,596
Maize	15,084	....	540	....	....
Coal and coke	110,186,892	120,885,660	136,854,504	110,312,812	124,060,608
Machinery	10,058,004	8,294,292	8,182,764	11,968,776	8,594,712
Iron and steel goods	3,619,772	3,392,568	3,116,700	3,578,904	3,144,636
Drugs	16,489,584	15,459,120	11,515,968	17,179,740	13,622,580
Metals	29,530,656	12,537,828	14,968,872	11,999,424	9,959,220

EXPORTS.

There was no export trade from this port to the United States direct or indirect.

Table showing the value of exports from Revel and their destinations for the last five years

Countries.	1887.	1888.	1889.	1890.	1891.
Great Britain	$5,418,589	$4,256,933	$4,467,235	$4,755,765	$4,563,830
Germany	1,690,183	1,700,542	1,370,176	1,356,956	1,641,930
Sweden	1,330,262	601,237	350,436	546,350	69,305
Netherlands	1,283,610	1,294,025	1,582,288	1,769,542	1,613,115
France	1,257,922	1,136,604	596,748	842,378	849,565
Denmark	312,196	397,603	420,169	506,715	344,795
Belgium	292,663	643,621	193,894	325,088	62,759
Norway	43,360	99,240	10,367	....	41,610
Portugal, etc	27,907	34,965	....	892	830
Total	11,656,693	10,165,371	8,991,266	10,103,683	9,187,738

Table showing the principal articles exported during the last five years.

Articles.		1887.	1888.	1889.	1890.	1891.
Spirits	gallons	6,102,681	4,894,096	3,921,680	4,419,537	1,688,846
Oats	bushels	7,555,914	8,961,648	7,663,776	4,518,423	3,390,485
Rye	do	2,929,329	1,745,496	1,058,463	1,528,704	1,446,593
Wheat	do	1,215,370	500,200	1,363,610	4,166,765	2,366,237
Buckwheat	do	332,900	216,550	88,860	43,910	3,115
Barley	do	207,120	844,248	1,018,720	918,184	600,784
Linseed	do	1,210,446	1,311,264	1,140,552	1,551,510	674,500
Oilcakes	pounds	15,871,608	11,243,844	10,745,028	10,147,860	7,119,324
Flax	do	44,449,992	37,526,616	29,333,556	37,227,816	43,637,512
Tow	do	8,213,904	4,812,948	2,305,296	2,901,492	4,426,488
Mineral oil	do	4,706,280	5,711,220	2,892,168	2,954,376	5,397,840
Deals	number	63,048	102,081	140,564	41,192	45,025

NAVIGATION.

This port was closed by ice from the beginning of February till the end of March, when a passage was cut through the ice in order to enable several steamers to enter. During this period of blockade all steamers destined for this port had to discharge at Baltic Port, which is the outer port of this harbor and was open to vessels about a month sooner than Revel.

The following table shows the number of vessels entered at and cleared from this port, as well as their tonnage, for the last five years:

Year.	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
1887	802	412,196	799	411,371
1888	651	345,636	645	338,027
1889	554	295,667	558	303,621
1890	607	314,148	613	318,220
1891	1,446	339,522	1,430	335,279

E. VON GLEHN,
Consular Agent.

United States Consular Agency,
Revel, April 28, 1892.

SULPHURING HOPS IN GERMANY.

TRANSMITTED BY CONSUL-GENERAL EDWARDS, OF BERLIN.

[Translation from the Berlin Staatsbürger Zeitung of May 14, 1892.]

The greatest hop market of Germany is Nuremberg. The vicinity of Nuremberg, and especially the villages of Spalt, Hersbruck, Lauf, Langenzau, Neustadt, and Altdorf, produce the finest hops in Germany. Hop culture is there so extensive that at times one travels on the railway for half an hour without seeing any crop except hops. From Nuremberg breweries in every part of Germany are supplied with good Bavarian hops, chiefly indirectly through hop dealers. The best sorts are, indeed, often purchased by the breweries directly from the producers. This is, however, not always possible, and the poor peasants are forced to bring their wares to the Nuremberg market and sell them there to the hop dealers. There are in Nuremberg about 286 hop dealers, of whom only about 6 are Christians, and these, in their business maxims, do not differ in the least from their Jewish competitors. Naturally much money is made in the hop trade. In what a shameless way, however, both the small producers and the brewers are swindled by the hop dealers is probably unknown to many a brewer who thinks himself a sharp business man, and this is why we here reveal the manipulations of dealers, as explained to us by an expert, in the interest of brewers and the beer-drinking public.

The hops, which naturally have a reddish or greenish yellow color, have the characteristic that, when not sufficiently dried, in moist weather they very quickly become heated and spoiled, taking a brown color and becoming covered with mold. Now, the wisest thing producers could do—and they would also get better prices—would be to bring their hops to market dry. Usually, however, the producers have no drying apparatus of their own, although every little village could supply itself with a drying house for bad autumns. For conserving moist wares sulphur is used. In the one hundred and forty-two hop-sulphuring kilns in Nuremberg 1,000 centners of sulphur are used annually. If the hops were properly dried down so that they contained not more than 10 or 12 per cent of water, they would never become heated when kept in a dry place. By sulphuring, however, the water component can be raised to 22 per cent. Naturally the dealer prefers to sulphur the hops "for their better conservation," and in this way to be able to sell to the brewer 20 per cent of water. The sulphurer has, however, still other fraudulent purposes, which we will now explain by an example.

Let us go in the fall to the corn market in Nuremberg when it has rained during the night and continues to rain in the daytime. In the forenoon the peasants unload their wet wares. If, then, in the afternoon one sticks his hand into such a wet bag, it actually burns him. The dealer naturally knows what will happen, and thereon he builds his plan. The custom has grown up that on each market day only a certain number of dealers buy, each individual dealer having his turn.

In the forenoon the dealer offers the peasant a very low price; naturally the peasant refuses. But of all the hop dealers standing near not one cares for the peasant and offers him more. The dealers who are prevented by custom from buying on that market day are nevertheless all on the ground. In the meanwhile noon comes and the dealers go to dinner. For the poor peasant everything is getting worse, his wares are growing warmer, and, unless he has the necessary drying appliances, in a couple of days he may as well throw his wares upon the dunghill. At last the peasant is glad when the dealer takes the wares at a spot price. Now what happens with such hops? They go to the magazine of the dealer, where, half burnt and moldy, they are cooled, and then, just as they are, treated to a plentiful dose of sulphuric acid. Thereupon they look as though freshly picked, and are sent to the brewer in the north as ff., or *prima prima*, or choice, the brewer congratulating himself on the beautiful hops he has obtained. Now, perhaps, the sulphur is not directly dangerous to health, but that from such wares no good beer can be made is self-evident.

Now, one may rightly ask, why, then, does the brewer buy sulphured hops, and why does he not refuse to accept wares having a diminished value? There are two important reasons for this. First, many brewers do not possess the technical knowledge necessary in order to recognize as reduced in value and half spoiled the hops made outwardly beautiful by sulphuring. We would like to advise brewers who purchase *prima* wares and nevertheless fail to make good beer to give their hops oftener for test to men having good technical educations. We can assure the brewer who in this way has fallen behind that the dealer will pay him any damages he may demand. Often, however, the brewer—especially the smaller brewer—is dependent upon the hop dealer because he owes him money. It is, therefore, the object of every hop dealer to get the brewery owner in his hand by lending him money upon security subject to draft or in some other way. When this is, however, accomplished the independence of the brewer is at an end. He must take from the hop dealer even the worst wares. Here ends the brewery and begins the beer-slop factory.

To the question, how is this evil to be remedied? we refer to a leading article in No. 367A, of August 9, 1891, entitled "Wine-Dressers' Unions in the Valley of the Ahr." There, too, the wine dealers, and especially those belonging to "the chosen race," held the wine trade in their hands in such a way that the wine-dressers became continually poorer while the former became continually richer. There, too, the wine-dressers, unless they wished to starve with their families, were compelled to sell for spot prices offered by the ring of wine dealers. There, at length, manhood asserted itself by calling into existence a union of Walportsheim wine-dressers, which was very soon joined by seventy-two producers out of a total of seventy-eight. "One for all and all for one" was the principle upon which they worked, and the result exceeded all expectations. Should not the hop producers adopt this idea? Should they do this, and we certainly hope that they will, they would do well to accept as their pattern the statutes of the Walportsheimer Union of Wine-Dressers, which would be gladly sent to them.

"One for all and all for one"—with this idea they must begin their war with the hop dealers, and the result will be the victory of the producers.

AUSTRALIAN PEARL-BUTTON SHELLS.

REPORT BY CONSUL-GENERAL WALLACE, OF MELBOURNE.

In reply to instruction, in the interest of pearl-button manufacturers in the United States, I have the honor to forward herewith a short report on the Australian pearl-button shell. My excuse for not supplying fuller statistics is that the pearl-shell fisheries are 2,000 miles from this port. I may, however, be able to supplement the report after a time.

The merchants of the colony of Western Australia who deal in pearl shells are Messrs. W. D. Moore and Lilly & Holdsworth, of Perth, and Capt. Riddell, of Freemantle.

The pearl shells found on these coasts suitable for button manufacturing are found in the neighborhood of Shanks Bay, but at the present time these grounds are closed for a period of four years, owing to the excessive fishing having somewhat exhausted the supply. These shells realize from £20 to £40 ($97.33 to $194.66) per ton in the market, according to quality and the state of the market.

There is another fishery in the northwest, at Roebuck Bay, but the shells there are very large, from 1½ to 3 pounds each, and are not used for button-making. These shells realize from £7 to £10 ($34.06½ to $48.66½) per cwt. (112 pounds).

The export duty on pearl shells is £2 ($9.73) per ton.

There has been some fishing and prospecting for pearl shells off the northern coast of South Australia, but so far, the information at hand would seem to indicate, with but indifferent success.

GEO. H. WALLACE,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Melbourne, June 27, 1892.

TRADE AND COMMERCE OF HIOGO.

REPORT BY CONSUL SMITHERS.

The year 1891 was not a profitable one to the merchants of this consular district. At the opening of the year the market was overstocked with imported goods, upon which, in many instances, a heavy loss was sustained by reason of the continued fall in exchange. In the principal article of the export trade, that of tea, the high price which was maintained during the firing season and the failure to realize corresponding prices in the United States was very disastrous and caused the failure of one of the principal exporters. The imports at Hiogo for 1891 amounted in value to $21,326,207 (United States gold) and the exports to $16,263,811, being a falling off in imports, as compared with 1890, of $8,084,149 and an increase in exports of $1,798,933.

TRADE WITH THE UNITED STATES.

Imports.—The imports from the United States amounted in value to $2,291,172, which is a decrease, as compared with 1890, of $806,162. This large decrease is owing to a diminution in kerosene importations, the returns showing that 15,711,250 gallons were imported during the year, against 21,760,280 gallons in 1890. It would be misleading, however, to suppose that this large falling off in kerosene imports indicates a decline in popularity of the American oil. In 1890 the shipments were far in excess of the demand, 750,000 cases having been carried over into the new year. American oil had to face serious opposition from the Russian product during the year.

In 1890 the imports into Japan of Russian oil amounted to 3,840,670 gallons and in 1891 to 7,978,180 gallons, an increase of more than 100 per cent. American oil has still the preference over the Russian product, and at an increased cost of from 5 to 6 cents a case; but to retain for the United States the ascendency in the markets of the world in this most important staple it would seem to be necessary that the refiners should put the price at the same figures as the Russian oil.

There was a large increase in importation of American raw cotton during the year, 6,218,697 pounds having been imported, valued at $901,852.41. The present unprecedentedly low price of American cotton has undoubtedly increased the demand. Superior grades of cotton yarn are manufactured at the Osaka and other cotton mills in Japan by mixing one-half of the American with a like quantity of Indian cotton. Greater attention should be paid by American shippers to baling the cotton, so as to prevent waste. There is a marked contrast in the way the American and the Indian cotton is baled, to the detriment of the former.

Exports.—The exports to the United States amounted in value to $4,371,374, an increase over 1890 of $179,215. Tea, crude camphor, and rice are the principal exports.

NAVIGATION.

Two hundred and sixty steamers from foreign countries, of an aggregate tonnage of 304,549 tons, entered during the year, and 31 sailing vessels. Of the latter 7 were under the American flag. In the coastwise trade, in which foreign and Japanese steamers are engaged, 556 steamers entered, with an aggregate tonnage of 824,018 tons, and 7 sailing vessels.

HEALTH AT HIOGO AND OSAKA.

While cholera has not existed in an epidemic form in this consular district during the year, it has prevailed in some of the central and northern provinces to a considerable extent, over nine thousand deaths having been reported. Until better sanitary regulations are adopted Japan must continue to suffer from this terrible malady.

E. J. SMITHERS,
Consul.

UNITED STATES CONSULATE,
Osaka and Hiogo, May 5, 1892.

PEANUT REFUSE.

REPORT BY CONSUL-GENERAL EDWARDS, OF BERLIN.

I have the honor to invite attention to the fact that the imperial German health authorities have discovered that the refuse left after the oil has been extracted from peanuts contains 50 per cent of albumen.

This discovery, which may prove of interest to the peanut industry of the United States, was made during some recent experiments which were being conducted by the imperial German health authorities with a view to ascertain whether a healthy bread could not be made of a mixture of rye flour and peanuts in some form.

W. H. EDWARDS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, July 17, 1892.

PEOPLE, INDUSTRIES, AND TRADE OF BRITISH GUIANA.

REPORT BY CONSUL CARROLL, OF DEMERARA.

AREA AND INHABITANTS.

The area or extent of the colony of British Guiana is variously estimated, some placing it at 60,000 square miles, others at 100,000 square miles, and others again at a much higher figure than the latter, while others place it at between 60,000 and 100,000 square miles; but, as the boundaries between the colony, Brazil, and Venezuela appear to be undetermined, there is ample room for even more estimates. Should those who estimate it at 100,000 square miles be correct, then the colony is larger than Great Britain. The interior is a vast wilderness of forest, mountain, and river, inhabited by several tribes of Indians, who are practically independent, and are estimated to number 10,000.

The inhabitants of British Guiana consist of representatives of all the principal races except the Polynesian. The African predominates, with 115,588, closely followed by the East Indian coolie, with 105,463. The aboriginal Indians number 7,463 in the settlements, while the census puts down an estimate of 10,000 for those living beyond the reach of the enumerators. The Chinese number 3,714, and are steadily decreasing. The Europeans only reach a total of 16,724, of whom 12,166 are Portuguese; while the mixed races—mostly colored, the offspring of the African and European—number 29,029.

The sugar plantations are generally conducted by East Indian coolies, the creole or native colored man not being depended upon to any extent on account, it is said, of his distaste for continuous work. The colored man generally lives in a village, where he owns a piece of land, in the center of which he builds his house, and around and to the rear of the same he cultivates his provisions when so inclined. Nearly all the colored villages, however, I am told, are on the verge of ruin, very few of the people attempting to cultivate their grounds, and those who do are in constant dread of the depredations of the idlers. In order to obtain a bare living, the villager works one or two days on a neighboring plantation, while the few industrious people grow plantains, sweet potatoes, cassava, and other vegetables for their own use and for sale. Fruit could be grown in abundance, but, unfortunately, the number of idlers is so great that it is understood that very little is allowed to ripen, it being stolen before the owner thinks it fit to gather. The inhabitants of all the villages number 125,757, the most populous of these being Plaisance, on the east coast of Demerara, containing 4,705 people. There can be no doubt that the inhabitants of the villages could attain a fair measure of prosperity if they would keep their provision grounds in cultivation, but, as it is, I am informed they are often destitute and half starved. The urban population of the colony numbers 62,079, being over one-fifth of the whole. There are only two towns—Georgetown, the capital of Demerara and the colony of British Guiana, and New Amsterdam, the capital of Berbice, Essequebo having no capital. New Amsterdam has 8,903, and Georgetown 53,176, inhabitants.

The capital is a city with a mayor and council, two cathedrals (Anglican and Roman Catholic), with their respective bishops, a residence for the governor, and extensive public buildings. The city is handsome, with wide streets laid out at right angles, many of the houses being surrounded by trees and large gardens. The palm is most conspicuous and abundant. Many of the houses have towers, from which the buildings appear as if in a forest. The city stands at the mouth of the Demerara River, on the eastern bank, the sea being to the north and the river, which is the harbor for shipping, on the west. It covers an area of nearly 4 square miles, nearly every street being straight and continuous the entire length and breadth of the city. Water street, which is the business thoroughfare and parallel with the river, is thronged with a motly crowd of half-clad Africans, picturesque Hindoo coolies, quiet Chinese storekeepers, and here and there a naked Indian, while Portuguese, Scotch, English, and French help to make up an interesting spectacle to a stranger.

BUSINESS AND AGRICULTURE.

The mercantile class is made up generally of Europeans, the Portuguese having the greater portion of the retail trade in their hands. Small provision stores are at almost every street corner in the capital, while every village and plantation is dotted with them. In these are sold breadstuffs, salt meat and fish, and other household necessaries, almost all of which are American. Even corn, which could easily be grown in the colony and of which two or three crops could be gathered annually, is imported to a considerable extent. The colony is progressive to some extent, but not to that degree which could naturally be expected. No doubt this is due to its position in the tropics. Up to the present no suitable agricultural people have settled in the colony, as everything outside the sugar plantations is accomplished in the most primitive manner. Even on these, on account of the land being in most cases below the level of the highest tides, the fields are cut up into small beds, surrounded by open drains, so that neither plows nor other machinery can be utilized, the consequence being that they are cultivated with fork and shovel. For the same reason only large capitalists can carry on the sugar plantations, as the cost of drainage—all carried out by manual labor—is enormous. There are also the sea dam and a public road to be kept up by the proprietor, which cost thousands of dollars annually. The rainfall being about 80 inches, with no natural drainage except at low water, pumping engines have been necessary on many of the plantations, which is another burden on the planter. All these, I am told, could be endured if sugar was bringing anything like a reasonable price; but during the last few years the market, it is said, has been so depressed that the profits have sunk to little or nothing. Still, this class is rich and seems very prosperous. It is not, in view of the above, surprising, they say, that the planter is not so enterprising as could be wished. Capital, I am told, is difficult to procure. The resources of the colony, however, would, if developed, soon put matters on a different footing. Sugar could be made a secondary consideration. Magnificent timber covers thousands of square miles of the interior, some of the woods being very handsome and suitable for the best cabinet use, while others are particularly suitable for public works, such as dock gates, piles, etc., as they are very durable and are rarely attacked by worms. To procure timber in quantity it is only necessary that the rapids of the great rivers should be overcome in some way, when a wonderful development would probably take place. Gold, too, has been found in so many different places that it is believed in a few years the colony will be worthy of the name of El Dorado, which was given to it by the Spaniards three centuries ago. Diamonds have also been found, while iron ore is plentiful, and there is great probability that copper and silver will be discovered.

Its capabilities in the way of agricultural produce are enormous. There is plenty of good land suitable for cocoa, coffee, and cotton, while rice, which is at present imported from India in very large quantities, could be grown to perfection, the quality being equal to that of South Carolina or Georgia. Cotton and coffee were the staple products at the beginning of this century, but, having been replaced by sugar when this was the most profitable, the planters are naturally averse to abandoning its cultivation, together with all the valuable machinery in connection therewith, notwithstanding their wailing. Attempts have been made to introduce the culture of the banana for the American market, but at present the matter may be said to be in abeyance.

CLIMATE.

The colony has long suffered from false reports as to its healthfulness, and this has had a great deal to do with its progress and the sparseness of population. Yellow fever is rare, only one epidemic of that disease occurring during the last twenty years. The principal diseases are malarial fevers and dysentery. Smallpox, scarlet fever, and a host of other fevers common in temperate climates are unknown here, while those suffering from pulmonary diseases are benefited by a residence in the colony, as are also those who suffer from rheumatism. One rheumatic of years' standing is known to have had complete immunity from the disease during his residence in the colony.

SUGAR ESTATES.

The inhabited portion of the colony consists of a strip of alluvial soil, very fertile, extending along the coast and for comparatively short distances up the great rivers, rarely reaching more than 3 miles inland, and, indeed, seldom that. Upon this narrow strip about a hundred sugar plantations are situated, facing the coast or river, from half a mile to 2 miles in breadth, while the cultivation extends back a distance of 2 or 3 miles. On these plantations sugar, the staple product of the colony, is produced, the average annual export being about 130,000 hogsheads. In 1890, however, on account of the excessive rainfall, it only amounted to 117,204 hogsheads; but 1891 shows an increase to 116,968 tons 12 cwts. 1 quarter. Besides sugar, the plantations produce rum and molasses, these amounting in 1891 to 102,101⅓ puncheons of the former and 14,311 casks of the latter. The plantations in question are generally in the hands of English capitalists. They are worked by coolie and colored labor, the number of laborers on all being 90,492, one-fourth thereof being colored. The greatest number on any one plantation is 2,171. Besides the resident laborers on the plantations, the colored people who reside in villages, formerly plantations, which intersperse the same, occasionally labor thereon; but they can not be depended upon for anything approximating regular work. The East Indian coolie is conveyed to the colony at the expense of the Government and the planters under a contract for five years' industrial service and five years' residence in the colony, after which he is entitled to claim a passage to his home. Very elaborate precautions are taken to prevent any abuse in connection with the coolie immigration system, the coolie being protected by law, while at the same time bound to labor for the current rates of wages—about 50 cents per task, which is generally a day's work, although it is understood a strong man can accomplish more if he sees fit. The coolie is provided with a cottage, food, and medical attendance in the hospital when ill, which each plantation is required to provide, and, all things considered, he is made very comfortable. On account of their frugal habits, they, as a rule, save money, few caring to claim the return passage until they have amassed from $500 to $1,000. Some leave the plantations and open stores or become cattle farmers, for which latter they seem to be peculiarly adapted. The coolie is not so strong as the colored laborer, but it is understood that, being more willing and regular—even aside from his contract—he is generally liked much better than the latter.

Table showing the quantity and value of sugar exported during each year from 1884 to 1891.

Year.	Quantity.			Value.	Proportion shipped to the United States.
	Tons.	*cwts.*	*qrs.*		
1884	125,321	18	2	$8,750,225.30	Less than one-sixth.
1885	96,058	12	1	6,647,255.95	About seven-eighteenths.
1886	111,855	1	2	6,997,156.36	About one-fifth.
1887	134,874	8	1	8,633,461.00	About three-sevenths.
1888	108,122	3	2	7,712,114.47	Nearly one-half.
1889	115,587	2	1	9,187,891.14	Do.
1890	105,483	17	1	6,898,644.61	About four-sevenths.
1891	116,968	12	1	7,981,158.33	About two-thirds.

NOTE.—The ton is of 2,240 pounds.

GOLD AND GOLD-MINING.

After sugar, the second product of consequence, which bids fair to become the first in the near future, is gold, the third being timber. Gold has been obtained, with minor exceptions, thus far from placer washing. Quartz-mining, however, is under consideration on a large scale, and is even now in operation. It is only recently—about seven years ago—that this metal was found in any great quantity; search, however, has been made for it nearly as far back as three hundred years. Latterly, notwithstanding the difficulties of traveling to and in the interior, the output has been steadily increasing. In 1889 the export amounted to 29,327 ounces, valued at $545,482.20; this was more than doubled in 1890, the amount being 62,615 ounces and the value $1,124,755.20, while during 1891 it increased to 101,298.1 ounces, the value being $1,801,389. The labor employed in gold-washing is, with rare exceptions, colored, the wages of 64 cents per day and rations inducing this race to engage in the enterprise. When, however, they discover that they have to work daily, it is understood they often endeavor to break their contract or desert. The number of persons engaged in the gold and timber industries is said to be 6,646, those on the River Essequebo beyond Bartica (the principal gold district) being nearly two-thirds of the total. The other gold districts are the Puruni (a tributary of the Masaruni), the Barima and Barama in the northwest, and the upper Demerara. The difficulties, among others, in the way of gold-seekers are a series of rapids by which every great river in the colony is obstructed, which are dangerous without proper river pilots, who are generally Indians. Gold expeditions, in consequence, are expensive, as everything required must be carried in open boats, the journey often consuming three weeks, and are usually cut off from communication with the coast for two or three months.

The following table shows the amount and value of native gold exported annually since 1885, prior to which no record thereof was kept:

Year.	Quantity.	Value.
	Ounces.	
1885	939$\frac{3}{4}$	$15,596.00
1886	6,518$\frac{3}{20}$	112,042.48
1887	11,906$\frac{3}{10}$	213,252.41
1888	14,570$\frac{13}{20}$	266,718.96
1889	28,282$\frac{17}{20}$	524,325.05
1890	62,615$\frac{3}{4}$	1,124,759.72
1891	101,298$\frac{1}{10}$	1,801,389.00

WOODS OF BRITISH GUIANA.

Timber was shipped in 1890 to the extent of 332,098 cubic feet, amounting in value to $110,000; in 1891 312,801 cubic feet, valued at $96,329.62. This industry could be developed to almost any extent if the difficulty of the rapids was overcome, so that timber could be easily brought down from the interior. At present little or nothing can be done beyond the rapids, so that only a very small portion of the country can be profitably worked. Another product of the forest is "ballata," a kind of gutta-percha, which was exported in 1890 to the amount of 226,809 pounds. Shingles, firewood, and charcoal are also exported to a slight extent, principally to Barbados.

The forests embrace a great many species of trees. The varieties of lumber are, as a result, numerous in color—from dark red to almost pure white—and in specific gravity from nearly double that of water to less than half that of the standard liquid. The principal building timbers are green heart, mora, and wallaba. The first is a most valuable wood, being classed with teak in the regulations of Lloyd's, either one of which may be used exclusively in the boundary planks of weather decks, while its durable qualities are placed on a level with oak, only teak coming before it. It is heavy, very close grained, gray with a greenish cast, and may be obtained 50 or more feet in length and squaring 12 to 18 inches. Under water and in the tropics it is superior to all other timbers, house frames a hundred years old having been found still unperforated by worms. The mora is not quite so close grained as green heart, but it is classed with it at Lloyd's, and is almost equally durable. Its color is reddish, and it may be obtained equally as large as green heart. Wallaba is a dark red wood, with an unpleasant odor when new, very durable, but not obtainable in such large-sized logs as those just adverted to. Being easily split, it is commonly used for making shingles, palings, cask and vat staves, etc. On account of its color and smell, it can not be used for rum puncheons, but after a little use water makes no impression upon it. Other timbers are particularly suited for special purposes, such as that of the bullet tree, which was formerly considered the only timber fit to be used for the arms and shafts of windmills. Then there is the silver bally, which is light and suitable for boat-building, from its containing a bitter principle obnoxious to worms and barnacles.

As to the woods suitable for furniture, of which there are about a hundred different kinds, these will no doubt be appreciated in other parts of the world when known a little better than at present. The native cedar (*Cedrela*), which is quite different from the timber of trees of the pine family, is very useful for wardrobes and cabinets, where its scent tends to keep away insects. Mahogany is not native to the colony, but the wood called Guiana mahogany is that of the *carapa*, commonly known as crab wood. It is not so dark in color or as hard in texture as mahogany, and, being more easily worked, is used for all kinds of furniture. Letterwood is perhaps one of the prettiest, but, as the peculiar dark marks are only found in the heart thereof, only small logs can be obtained, rarely exceeding 6 inches in diameter and more being only 4 or 5. Purpleheart is unique in being of a pretty violet color when fresh or new, which, however, turns to a dark brown after being worked up. If it were possible to prevent this change, it would be a most beautiful wood, but even as it is the furniture made from it exactly resembles that of rosewood. To enumerate all the valuable furniture woods would take up too much space, and I therefore inclose a printed list of a collection made in 1878 for the Paris Exposition. I may mention, however, that every color known is represented, from almost black, through browns and reds to deep and pale yellow, to almost white. They are, however, curiously free from irregular veining and knots, the marks being almost uniform and in parallel lines; nevertheless, these are by no means wanting in beauty. For paneling nothing can excel the nearly black wamara, contrasted with the pale green heart or the lighter and more easily worked, almost white simarupa. At present the demand is so limited that many of the fancy woods are difficult to procure, the woodcutters looking only for such timber as they know will command a market. If, however, a market was opened, these could be collected as easily as green heart, mora, and wallaba are at present.

WOODS OF BRITISH GUIANA.

[Collected for the Government by Michael McTurk for the local and Paris international exhibitions, 1878.]

(1) Souari (*Caryocar tomentosum*, Dec.), from the Moraballi Creek, Essequebo River. Souari thrives best and seems to attain to its largest size on the hills composed of a stiff, yellowish clay, mixed with a gravelly kind of stone resembling oxide of iron. The trees are plentiful on the Essequebo and seldom very far from a creek or the main river. Their average height is about 90 feet, and the timber can easily be got to square 24 inches; it is very tough and crossgrained. The trunks of the trees are seldom used, but the roots make excellent floors and futtocks for shipbuilding, and can be had sufficiently large to timber a vessel of large size. The souari nut (butternut), well known in the colony, is the fruit of this tree. The nuts, three or four in number, grow inclosed in a pulpy substance, or fruit, which, before it drops from the tree, greatly resembles in size, shape, and color the mammee apple (*Mammea americana*, Lin.).

(2) Determa, from the Moraballi Creek, Essequebo River. Determa grows best on clayey, gravelly soil, and is more plentiful on the Moraballi Creek than any other part of the colony below the rapids that I am aware of. The average height is about 100 feet, and it can be had to square up to 30 inches. This wood is of a color resembling cedar, and is used for planking boats, in the construction of railway carriages, and for many other purposes where a light and strong wood is required. Determa is also used for the masts and spars of vessels; the largest spars for these purposes procurable in the colony are of this wood, from 70 to 90 feet long and 14 inches in diameter at the smallest end. I have seen a log of this timber 42 inches square.

(3) Kabukalli, from the Moraballi Creek, Essequebo River. This tree is plentiful all over the colony and thrives best in loose, sandy soil. Kabukalli is one of our tallest forest trees and grows very straight; its average height is about 120 feet, and it can be had to square up to 30 inches free of sap. Kabukalli is used in boat-building, and for timber is little inferior to mora. This wood has a very unpleasant smell and is disliked by worms. The Indians living in the wet savannahs or where the rivers are free of bush to form a shade prefer canoes made of this wood to any other, as they will not split from exposure to the sun. A gelatinous substance forms on the stump after cutting down a kabukalli tree; it has a disagreeable smell and never hardens. The specific gravity of this wood, as given in a letter by John F. Bourne, esq., the then civil engineer of the colony, to J. Brumell, esq., secretary to the committee for the exhibition of 1862, was 1.154, water being 1.

(4) Tataboo, from the Moraballi Creek, Essequebo River. The tree from which the samples were cut was 104 feet high. Tataboo grows in sandy soil and is not a very common wood. The average height of these trees is about 80 feet. The wood is dark colored, heavy, and hard and well adapted for mill-bed timbers; it is also used in boat-building, house-framing, etc. Tataboo can be had to square up to 22 inches free of sap.

(5) Mamoori-balli, from the Moraballi Creek, Essequebo River. This tree is plentiful in Essequebo and grows best in sandy soil. The average height is about 70 feet, and it can be had to square 16 inches. The wood is tough and hard, and is suitable for house-framing and other work where it will not be exposed to the weather.

(6) Pakoorie, from the Itoori-bisci Creek, Essequebo River. This tree is plentiful on the Itoori-bisci Creek, and generally throughout the country of Essequebo; it thrives best in loose,

sandy soil. The average height is about 80 feet, but it is a tree the trunk of which is very large compared with its height; it can be had to square up to 36 inches free of sap. When arrived at maturity this is a very durable wood, and is used for house-framing and many other purposes. The tree produces an edible fruit of the size and color of a large orange and a yellow sappy gum that is considered useless.

(7) Waibaima, from the Moraballi Creek, Essequebo River. This tree is a species of cirouaballi or siruaballi (*Nectandra* or *Oreodaphne*). The wood has a strong aromatic scent and bitter taste, and is about the best wood in the colony for planking vessels. The trees are numerous on the Essequebo and Demerara rivers. Their average height is about 90 feet, and, as there is little or no sap, the timber can be had to square a large size—20 to 28 inches. For planking and all other purposes of shipbuilding for which green heart is used I think this wood is superior and deserves to be classed among the first-class woods at Lloyd's for shipbuilding.

(8) Kooroo-balli, or trysil, from the Moraballi Creek, Essequebo River, where this tree grows plentifully. The average height of the trees in the forest on the upper parts of the river is about 60 feet. On the coast lands and in the swamps back of the estates, where large quantities of it are cut for firewood, it does not grow so large; it can be had to square 10 inches free of sap, and is a dark, close-grained wood suitable for making furniture. The bark of the kooroo-balli is used by the Indians in cases of dysentery.

(9) Itikiboura-balli (*Machærium ?*), from the Moraballi Creek, Essequebo River. Itikiboura-balli grows in clay soil and on the islands in the rapids of the Essequebo. It is comparatively a rare tree below the rapids, and does not attain to an average height of more than 70 feet. The sap wood is white, and its junction with the heart, or *tacouba*, which is of a deep brown, almost black, color, is sharply defined. It can be had to square up to 15 inches free of sap, and is used for making articles of furniture and walking sticks. Itikiboura-balli is one of the heaviest and closest-grained woods in the colony.

(10) Seebadani, from the Moraballi Creek, Essequebo River. This tree grows in clay and sandy soil, and has an average height of 90 feet. The wood is used for framing purposes, and can be had in large quantities. It will square up to 20 inches, and has very little sap.

(11) Wallaba, or Bimiti-wallaba (*Eperua falcata*, Aubl.), from the Moraballi Creek, Essequebo River. This wallaba grows in loose, sandy soil over extensive tracts of country, and is a wood known to every one in the colony. There are four varieties of this tree, locally known as Bimiti-wallaba, Itoori wallaba, Karabimiti wallaba, and Sare-bebe, meaning humming bird, baboon, red humming bird, and water wallaba. The first two grow on loose, sandy soil and the Karabimiti wallaba on clay near the river banks. Sare-bebe grows in the water at the edge of the river. The last two are never used. From the Bimiti and Itoori wallaba frames for houses are made, vat staves, paling staves, and shingles, both for colonial use and for export to the neighboring colonies. These trees are all plentiful, and have an average height of 80 feet, and can be had to square 20 inches free of sap. The scraped root of the Itoori wallaba is used by the Indians as a cure for toothache.

(12) Bartaballi (*Achras mammosa*, Bonpl., *Lucuma Bonplandii*, H. B. K.), from the Moraballi Creek, Essequebo River. Bartaballi grows on clay and sandy soils, and is found plentifully up the Essequebo and Demerara rivers. The tree averages a height of about 90 feet, and can be had to square up to 20 inches free of sap. The wood is close grained, light, and of a pale-brown color, and is useful for making tables and other articles of furniture and for partition boards, doors, etc., for houses. This tree produces a milky juice somewhat similar to that of the burueh, or bullet tree (No. 15), but of a sticky nature. Its fruit is one of the best produced by any of our forest trees and is eagerly sought for by the Indians during its season (about the month of April), when, with characteristic carelessness, the trees are cut down in large numbers for their fruit. The specific gravity of this wood, according to Mr. Bourne, is 0.893.

(13) Itoori wallaba. (See No. 11.)

(14) Tawaronero, or bastard bullet tree (*Humirium floribundam*, Mart.). This tree is plentiful throughout the colony, and grows on sandy soil and near to, but not in, the swamps. The average height is about 90 feet, and it can be had to square 20 inches free of sap. The timber is useful for framing houses, wheel spokes, and many other purposes, and where small-sized timber is required is superior to green heart. The tree produces an edible fruit about the size of a grape. At the expiration of a week or ten days after cutting away the bark from the stem of these trees a minute fungus emitting an agreeable perfume grows upon them; this is scraped off and used by the Indians for scenting their hair oil. Tawaronero produces a gum similar to the bullet tree, but in much smaller quantity.

(15) Bullet tree, or burueh (*Sapota Mulleri*, Miq., or *Mimusops*, sp. ?), from the Moraballi Creek, Essequebo River. This tree grows plentifully, especially in Berbice, where it may be found 5 feet in diameter. Its average height is about 100 feet, and it can be had to square 42 inches free of sap. During the time that windmills were used in the colony the bullet tree was considered to be the best wood for the arms of a windmill. The gum known as ballata is produced by this tree. The wood is dark red, close grained, and solid and, when free of sap, most durable. During the time that the fruit is ripe many of the trees are cut down. The fruit resembles the well-known sapodilla in taste and is about the size of a large English cherry; from the seeds oil can be extracted. The bark of the bullet tree is used medicinally by the Indians in the form of a clyster for a disease called "kaina-kuhu," or Carabisci sick, and occasionally as an emetic.

(16) Fukadie, from the Moraballi Creek, Essequebo River. Fukadie grows on sandy soil. Its average height is about 80 feet, and it can be had to square 16 inches free of sap. It is used for house-framing and is a durable wood for indoor work. This tree is very plentiful on the Itoori-bisci Creek and generally in Essequebo.

(17) Karahura, from the Moraballi Creek, Essequebo River. Karahura grows generally throughout the colony in dry places. It is one of the lightest of colonial woods and is only fit for partition boards and other indoor work of a similar nature. It is used by the Indians for making canoes. Its average height is 80 feet, and it can be had to square 30 inches.

(18) Hooboodie, or wild cashew, from the Moraballi Creek, Essequebo River. This tree grows in low situations near water and averages about 80 feet in height. The wood is light and not very durable and is only used for boards. The fruit of the hooboodie is similar in shape to that of the ordinary cashew (*Anacardium occidentale*, Lin.), and, as well as the bark, is of an astringent nature and is used medicinally in cases of diarrhea.

(19) Lallifer, from the Moraballi Creek, Essequebo River. This tree, like waibaima (No. 7), is a species of cirouaballi or siruaballi (*Nectandra* or *Oreodaphne*), and is comparatively abundant on the Essequebo; but, like all of the siruaballi species, it is difficult to procure of large size free of holes. The wood has a strong aromatic scent, and is used in boat-building. Its average height is about 70 feet, and it can be had to square 16 inches.

(20) Manniballi, from the Moraballi Creek, Essequebo River. Manniballi grows in dry situations, and its wood is distinct from, and much more durable than, that of *Manni* (*Amyris*, or *Icica*, sp. ?), a tree that always grows in swamps. Manniballi is a most durable wood when free of sap and, like tawaronero (No. 14), is superior to green heart where small sizes of timber are required. It grows tall and straight, is close grained, and of a brownish-yellow color. Its average height is about 100 feet, with a very small top. Manniballi produces a sticky yellow gum, which is not used for any purpose that I am aware of. This tree can be had to square 20 inches free of sap.

(21) Kauta-balli, from the Moraballi Creek, Essequebo River. There are two or three varieties of this tree, distinguished by the size of their leaves. Kauta-balli grows to its largest size on clay soil mixed with gravelly ironstone. It is plentiful on hilly land, and attains to an average height of 80 feet, and can be had to square 14 inches. The wood is useful for house-framing, is hard, and has a close, straight grain. The fruit of the kauta-balli is not edible; its bark, made into charcoal and ground to powder, is used by the Indian

women to mix with the clay of which their pots, gurglets, and other earthenware vessels are made.

(22) Wadaduri, or monkey pot (*Lecythis grandiflora*, Aubl.), from the Moraballi Creek, Essequebo River. There are two varieties of this tree plentiful throughout the colony, distinguished by the size of their leaves and the places where they grow. This sample is from the small-leafed kind, which grows to a large size on sand and clayey soil and attains to an average height of about 100 feet. It can be had to square 28 inches free of sap. The broad-leafed variety grows in swampy places and is a much smaller tree; its wood is not so durable as that of the small-leafed variety. It is used for furniture, house-building, etc., and formerly for hogshead staves. The tree bears a nut, which is sometimes eaten, and a fine oil can be extracted from the kernels.

(23) Wamara, from the Moraballi Creek, Essequebo River. This tree is not plentiful in any part of the colony below the rapids. It grows on sandy soil, and does not average more than about 60 feet in height, and can be had to square 12 inches free of sap. The heart, or *iacouba*, is exceedingly hard, heavy, and very close grained, resembling ebony. The sap wood, of which there is very little, is of a yellowish-white color; on exposure to the weather it rots away from the heart rapidly. The Indians make their clubs from this wood. It is little used in the colony, owing to its extreme hardness, but it is a fine wood for inlaying and other cabinetwork.

(24) Irriariadan, from the Moraballi Creek, Essequebo River, where it grows plentifully on high, sandy soil. Irriariadan is a species of trysil (No. 8) and is little known. It is a fine wood of a dark-brown color and suitable for cabinetwork, partition boards, staves, and many other purposes. The average height is about 80 feet, and it can be had to square 10 inches free of sap.

(25) Dukuria, from the Moraballi Creek, Essequebo River. Dukuria is plentiful throughout the colony, and grows in dry soils; it is used for house-framing and many other purposes, and is a very serviceable wood. There are two kinds of Dukuria—fine and large leafed. Its average height is about 90 feet, and it will square 16 inches free of sap.

(26) Dakama-balli, from the upper Essequebo River, where the tree grows plentifully near the water. Its average height is about 80 feet, and it will square 20 inches free of sap. The wood is little used. From the seeds of the dakama-balli a starch is extracted which is considered very efficacious in cases of dysentery or diarrhea. The Indians, when their cassava fails, use the starch mixed with decayed wood to make a kind of bread. The bark is useful for tanning.

(27) Green heart, or bibiru (*Nectrandra Rodiæi*, Schomb.), from the Moraballi Creek, Essequebo River. There are three varieties of green heart—yellow, black, and mainop—all most serviceable and durable woods if cut when arrived at maturity. Green heart is one of our tallest forest trees, and logs can be had from 18 to 24 inches square and 70 feet long. It grows in clay soil near the rivers and creeks and not over extensive tracts of country, like the bullet tree and wallaba. Owing to the great demand for this timber and the want of legal restriction to prevent the cutting of the young trees by woodcutters and charcoal-burners, it is becoming extremely difficult to procure good green heart, and its preservation is worthy of the attention of the legislature. Green heart is one of the eight first-class woods at Lloyd's; and admirable kelsons, knees, and other timbers can be had of it. Sawn into scantling it is used for planking vessels. For wharfs, house-framing, mill timbers, and many other purposes green heart is unsurpassed by any other wood in the colony. From the bark and seeds bebeerine is extracted. The Indians use the seeds medicinally in cases of diarrhea and for food, ground and mixed with other meal, in times of scarcity.

(28) Eta-balli, from the upper Essequebo River. Eta-balli is plentiful in low situations near the rivers and creeks. The wood is little used. The tree attains to an average height of about 90 feet, and will square 18 inches free of sap.

(29) Wild guava, from the upper Essequebo River. Wild guava grows best in rocky soil. There are four varieties of this tree. The bark is a powerful astringent, and contains tannin.

These trees are not plentiful, and the wood is little known or used; but where a light, tough, and close-grained wood is desirable wild guava should answer admirably. Its average height is about 60 feet, and it will square 10 inches.

(30) Arrisouroo, from the upper Essequebo River, where it grows plentifully in low situations near the river. This wood is of a dark-yellow color, and has a very bitter taste; it lasts long exposed to the weather, and is not eaten by worms. For these reasons I think it is well adapted for planking vessels and making estates' kokers. The average height is about 80 feet, and it will square 14 inches free of sap. A decoction of the bark is used for dressing ulcers and the sap as a remedy for ringworm.

(31) Kamarakata, from the upper Essequebo River. Kamarakata is a dark-brown, close-grained, heavy wood of a bitter taste, and resembles hackia (No. 44—*Siderodendron triflorum*, Vahl.). It is very lasting and is used for boat timbers, for which purpose it answers well. It grows in Mahaicony, on the Essequebo in low places near the river (often hanging over the water), and on the islands in and above the rapids. Kamarakata is comparatively a short tree, not averaging more than 50 feet in height, but has a large trunk. It can be had to square 22 inches free of sap, of which there is very little.

(32) Dukala-balli, from the Moraballi Creek, Essequebo River. Dukala-balli is a rare tree, and grows in clay and sandy soil. The wood is of deep-red color, heavy, and close grained, and is used for making articles of furniture, bedstead posts, etc. It takes a fine polish, and is a durable wood. Dukala-balli grows to a large size; its average height is about 120 feet, and it will square 20 inches free of sap.

(33) Suradanni, from the Moraballi Creek, Essequebo River. Suradanni grows in low situations on the Essequebo River, and is plentiful. The wood is of a deep-red color, grows to a large size, and is used for making canoes, planking boats, and many other purposes.

(34) Caraba, or crab wood, white variety (*Carapa Guianensis*, Aubl.). There are two kinds—the white and red—both of which attain to a large size and are very useful woods. From the trunks canoes are made; and, sawn into boards, it is used for making furniture, partitions, flooring, etc. Masts and spars are sometimes made from crab wood. The seeds yield the well-known "crab oil," and the bark is used for tanning. Along with green heart, this is one of the few trees in the colony that has all its parts useful. The average height of a full-grown tree is about 120 feet, and it can be had to square 30 inches. The tree from which the sample came was 170 feet in height and 42 inches in diameter.

(35) Foglekop, from the Itoori-bisci Creek, Essequebo River. Foglekop grows in sandy soil, and is a light-colored, close-grained wood of little weight, and is plentiful on the Essequebo and Pomeroon rivers. Sawn into boards, it is useful for indoor work, partitions, doors, etc. Its average height is about 70 feet, and it will square 12 inches. Foglekop bears a small eatable fruit, the seeds of which contain oil.

(36) Houboo-balli, from the Itoori-bisci Creek, Essequebo River, where the trees grow plentifully. The wood is of a light-brown color, variegated with black and brown veins. It takes a fine polish, and is useful for making articles of furniture and cabinetwork of any description. Under water it lasts a long time, and on the bottom of a punt or boat will outlast almost any other wood. The tree attains to an average height of about 100 feet, and will square 20 inches free of sap. The bark contains a sticky gum.

(37) Simiri, or locust (*Hymenæa Courbaril*, Lin.), from the Itoori-bisci Creek, Essequebo River. Simiri is abundant and grows best in white, sandy soil. The wood is hard, heavy, and close grained, of a brown color streaked with veins, and takes a fine polish. It is used for making furniture, mill beds, and treenails for planking of ships. There are two varieties of this tree—Simiri and K'wanarri—distinguished by the size of their bean pods. The pulp surrounding the pods of the beans of both trees is edible. The Indians make wood-skin canoes from the bark. The tree yields the gum animi of commerce. The gum is found in large quantities where a tree has rotted away, many barrelsful being often taken from one spot. The gum forms in the inner part of a hollow tree, and it may also be procured in small quantities by tapping.

(38) Hiawa-balli (*Omphalobium Lamberti*, Dec.), from the Itoori-bisci Creek, Essequebo River. This is a rare tree, and its wood is in great demand for cabinetwork. It is easily worked and of great beauty. Hiawa-balli grows on sand and rocky soil and often attains to a large size. Its average height is about 90 feet, and it will square, free of sap, 12 inches. It has a sticky gum similar to Houboo-balli (No. 36).

(39) Siribidanni, from the Itoori-bisci Creek, Essequebo River. Siribidanni grows in loose, sandy soil and is plentiful in some localities. It does not grow to a large size, and the wood is very sappy. The heart is of a purple color, close grained and hard, and is useful for inlaying and making furniture. The sap of this wood decays rapidly on exposure to the weather. The average height is about 50 feet, and it will square, free of sap, 4 to 6 inches.

(40) Simarupa (*Simaruba officinalis*, Dec.), from the Itoori-bisci Creek, Essequebo River. Simarupa is plentiful throughout the colony, and grows to a large size on sandy soil and on islands in the river. The wood is of a light color, light, and close grained, and is one of the most useful woods for partition boards and other inside house work. Wood ants will not eat or injure simarupa. The average height of the tree is about 90 feet, and it will square 24 inches. The bark of the root is used medicinally in cases of diarrhea.

(41) Kurahara, from the Itoori-bisci Creek, Essequebo River. Kurahara grows in sandy soil and on the edges of swamps; it is a very straight tree, with dark-green leaves. The wood is red, of the color of cedar, and floats in water; it is used for making canoes, planking boats, and spars. The average height is about 90 feet, and it will square 20 inches free of sap. Kurahara has a resinous gum not used for any purpose that I am aware of.

(42) K'wanarri (locust). (See No. 37.)

(43) Duka, from the Itoori-bisci Creek, Essequebo River. There are two or three kinds of duka, all growing on dry, sandy soil. The sample is from the largest kind. The wood is light, and, sawn into boards, is useful for indoor house work, tables, etc. Its average height is about 50 feet, and it will square 10 inches.

(44) Hackia (*Siderodendron triflorum*, Vahl.?). This tree grows plentifully in some localities on dry, sandy soil, and during the time it is in flower in the month of November is one of the most beautiful of our forest trees. At this time, on the side of a hill, the bright-yellow flowers of the hackia appear from a distance like a mass of gold against the dark-green foliage of the surrounding forest. The wood is exceedingly hard, close grained, heavy, and of a brown color. It is valuable for making cogs and shafts, but is almost too hard for any other purpose. Average height, about 65 feet. It will square 12 or 14 inches free of sap.

(45) Kumara, or tonka bean (*Dipterix odorata*, Willd.), from the Itoori-bisci Creek, Essequebo River. Kumara grows plentifully in some localities, especially above and on the islands in the rapids of the Essequebo River. Kumara is a close-grained, heavy, brown-colored wood, exceedingly tough and durable, and is useful for cogs, shafts, and any other purpose where a strong wood capable of resisting great pressure is desired. This tree yields the tonka beans, well known in the colony; they are used by the Indians to perfume their hair oil, and when put among clothing are supposed to keep away moths and other insects. An oil can be extracted from tonka beans. Average height is about 90 feet, and will square 22 inches.

(46) Kuraroo, or bat seed, from the Itoori-bisci Creek, Essequebo River. Kuraroo is a tree common throughout the colony and may be seen growing in Georgetown, where it is known as wild olive. Its wood is hard, but not very durable, and is little used; it takes a fine polish and would be useful for furniture. This tree does not grow very tall, but the diameter of the trunk is great in proportion to its height. Its average height is about 60 feet, and it can be had to square 36 to 48 inches in short lengths.

(47) Aramata, from the Itoori-bisci Creek, Essequebo River. Aramata is comparatively a common tree throughout the colony, and grows on sandy soil. It is a dark-colored, hard wood and is used in boat-building, house-framing, and sometimes for cabinetwork. Its average height is about 80 feet, and it can be had to square 12 inches free of sap. A decoction

of the bark is used by the Indians to wash their dogs, and sometimes their own heads, to destroy vermin.

(48) Caraba, or crab wood, red variety (*Carapa guianensis*, Aubl.). (See No. 34.)

(49) Warikuri, waracoori, or white cedar, from the Itoori-bisci Creek, Essequebo River. It grows plentifully in swampy places. With the exception of its bark, it bears no resemblance in any of its parts to kurana, or red cedar. White cedar, when full grown, is a dark-brown, hard, heavy, and close-grained wood, with a white sap, very durable, especially under ground, but splits on exposure to the sun. It is probably the best wood procurable in the colony for foundations. White cedar grows luxuriantly in the swamps up the Lamaha Canal leading into Georgetown. Its average height is about 60 feet, and it will square 10 inches.

(50) Brown cirouaballi, or siruaballi, from the lands of Mr. William Thompson, Pln. "Adventure," Essequebo. This tree grows to a large size, and is used, like other siruaballis, for boat-building, for which purpose it seems specially adapted. It attains to an average height of 90 feet, and can often be had to square 36 inches. (See Nos. 7 and 19.)

(51) Oolu, from the Itoori-bisci Creek, Essequebo River, where it grows plentifully in loose, sandy soil. The wood has a strong aromatic scent resembling hiawa (No. 52—*Icica heptaphylla*, Aubl.), is of the color of pale cedar, and should be useful for drawers and shelves of wardrobes. Its average height is about 90 feet, and it can be had to square from 16 to 18 inches. Oolu produces a gum resembling hiawa, but in much smaller quantities.

(52) Hiawa (*Icica heptaphylla*, Aubl.), from the Itoori-bisci Creek, Essequebo River. Hiawa grows plentifully in Essequebo in loose, sandy soil; its wood is little used, as it decays rapidly on exposure to the weather. Like oolu (No. 51), it has a strong aromatic scent, is light, and should be useful for drawers and wardrobe shelves. This tree produces the gum known as hiawa, or resin of conima, which is burnt as incense. The average height is about 50 feet, and it will square 10 inches.

(53) Kurana, or red cedar (*Icica altissima*, Aubl.), from the Issorooro Creek, upper Pomeroon River. It grows to a large size, and is plentiful in some localities, notably so in the Waini; it is also found in the Cuyuni and Corentyne and in the upper part of the Pomeroon. It grows generally in low situations in clay soil. Red cedar is a most serviceable and valuable wood, and its uses are too well known to require description. The tree averages 100 feet in height, and can be had 38 or 40 inches in diameter. It has very little sap.

(54) Waciba, washiba, or bow wood, from the Issorooro Creek, upper Pomeroon River. Waciba grows to a large size, but it is a rare tree and little known. Its wood, of an olive color, is exceedingly tough, hard, and close grained, and is the best-known wood for bows. Its average height is about 120 feet, and it can be had to square 30 inches free of sap.

(55) Mora, white variety (*Mora excelsa*, Benth.), from the Issorooro Creek, upper Pomeroon River. There are three varieties of mora, known as red mora, white mora, and mora-bucquia. The first two grow in swamps and near the rivers and creeks, and are both very durable woods. Mora-bucquia, on the contrary, grows in high situations in clayey, rocky soil, and is not a durable wood. Mora seeds are used by the Indians to make a kind of meal, which is mixed with their cassava. The bark is used for tanning and medicinally in cases of dysentery. Mora is used in shipbuilding, and is an exceedingly tough wood, difficult to split, and one of the eight first-class woods at Lloyd's. Mora grows to a greater size and is more plentiful in the Barima River than in any other part of the colony. It often attains to the height of nearly 200 feet, but in such cases has generally a hollow trunk. It can be had to square 24 inches free of sap and holes.

(56) Tibicusi, or bastard letterwood, from the Piraka Creek, Pomeroon River. Tibicusi is a rare wood and only used for bows, walking sticks, and inlaying cabinetwork. The heart is beautifully marked, hard, heavy, and close grained. The sap decays rapidly on exposure to the weather. Average height is about 60 feet, and it will square 5 inches free of sap.

(57) Buro-koro, burracurra, paira, or letterwood, (*Brosimum Aubletii*, Poep., *Piratinera Guianensis*, Aubl.). Letterwood is a rare tree, and the wood is used for the same purposes

as tibicusi. It is beautifully marked, close grained, takes a high degree of polish, and is very heavy. Letterwood trees are sometimes of large size, but the heart, which is the only useful part, is very small, a tree of 20 inches in diameter having only 7 inches of heart; average height, about 60 feet.

(58) Keritee, or kretti, from the Aroua-pia-kooroo Creek, Pomeroon River. Keritee is a species of siruaballi, and is plentiful in some localities. The wood has a strong aromatic scent, is light, and in color and appearance resembles satinwood. It is useful for partitions and the upper planking of boats. Its average height is about 80 feet, and it will square 20 inches.

(59) Kooroobooreli, or purpleheart (*Copaifera pubiflora* and *Copaifera bracteata*, Benth.), from the Aroua-pia-kooroo Creek, Pomeroon River. There are two kinds of purpleheart, called koorooboorelli and marawinaroo. The bark of the marawinaroo (which is not so durable and with a more sappy wood than koorooboorelli) is used, as also that of the simiri or locust, by the Indians for making canoes, or "wood skins." They are sometimes of large size, accommodating 15 or 16 persons. Purpleheart is one of the tallest of our forest trees, and its round top may be easily distinguished rising above the surrounding forest on the hilly lands of the interior. The wood is of a purple color, hard, close grained, durable, and very tough. It is a fine wood for mill beds, house-framing, etc., and is capable of resisting great strains. Its average height is about 120 feet and there are many trees nearly, if not quite, 200 feet high. It can be had, free of sap, to square 30 inches.

(60) Yellow cirouaballi, or siruaballi, from the Aroua-pia-kooroo Creek, Pomeroon River. A light wood of bright-yellow color and strong aromatic scent, used principally for planking boats, and, free of sap, is a most durable wood. Yellow siruaballi often grows to a very large size in loose, sandy soil, but is difficult to procure over 12 inches square free of sap. The average height is about 60 feet. The bark is useful for tanning.

(61) Awati, from the Aroua-pia-kooroo Creek, Pomeroon River. Awati is a light wood, of close grain, the color of white pine, and is useful for indoor work. This wood is little known and not much used. A decoction of the bark and seeds is used as a wash by the Indians in cases of smallpox and is said to be very effective in healing the pustules. The average height is about 60 feet and its diameter 16 inches.

(62) Kakaralli (*Lecythis ollaria*, Lin.), from the Itoori-bisci Creek, Essequebo River. There are two kinds of kakaralli common throughout the country of Essequebo, and known as the white and black kakaralli. These woods are close grained and tough and of a light-brown color; they are used for house-framing, building wharfs, etc. It is said that barnacles will not eat or injure kakaralli. These trees grow tall and straight, but are too heavy to make spars. The inner bark of the white kakaralli is used by the Indians as a substitute for, and in preference to, paper for making their cigarettes, and is called "ouina." The average height of the tree is about 80 feet, and it will square 16 inches free of sap.

(63) Buhoorada, from the Itoori-bisci Creek, Essequebo River. Buhoorada is a large tree, common throughout the colony; it has a large top with reddish-brown leaves. The wood is heavy and close grained, but it is not well known and is little used. Its average height is about 75 feet, and it will square 20 inches free of sap.

January 15, 1878.

GOVERNMENT, CONSTITUTION, AND LAWS.

The constitution of the colony is a survival from the Dutch period, the articles of capitulation of 1803 guarantying its ancient laws and usages. Under the Dutch there were two distinct colonies—Essequebo and Demerara—under the West India Company, and Berbice, under the Berbice Association. These trading companies were, however, superseded in 1792 by a West Indian council appointed by the States-General of the Netherlands. The companies and the council were supreme; but local administrative bodies had grown up, that for Essequebo and Demerara going under the name of the council or court of policy, while that in Berbice was called the council of government. The former, which became the model for the court of policy of British Guiana of to-day, consisted of four officials, including the governor, and four colonists, the latter being chosen by the court from nominations of a double number submitted by the college of kiesheers, or electors. The kiesheers were elected for life by a constituency of slave-owners, only those possessing twenty-five slaves being entitled to vote, their only duties being to nominate, on behalf of their constituents, for the courts of justice and policy.

The old court of policy existed, with minor alterations, up to the end of last year (1891), then consisting of ten members—five officials and the same number of colonists—none but the governor, who also had the casting vote, being entitled to bring forward a resolution. It will appear from this that the official party were absolute, as the governor could always depend on his subordinates and decide any matter by his dual vote. This vote became such a grievance in matters connected with the finances that in 1796 the colonists were allowed to delegate five persons to form a college of financial representatives and sit and vote with the court of policy whenever matters connected with the revenue and expenditures were under consideration, this council going under the name of the combined court. Even here, although the colonists can outvote the official section, they are hampered by the fact that every proposition or estimate comes from the Government, and they can only proceed by amending or directly negativing the motion.

The best-informed colonists, while considering the colony overburdened with officialism, were not particularly desirous of change, but rather liked the paternal system. A large number of persons, however, petitioned the Queen for reform in the shape of direct representation, with a house of assembly, and a lowering of the franchise. As a result a very small concession has been granted in the new constitution coming into operation with the present year. By this the kiesheers are abolished, the court of policy increased to sixteen members, and an executive council of four officials and three colonists, nominated by the Queen, established. The franchise has been lowered somewhat, the qualification for voters being a yearly income of £100 or property value of $500; but the number on the register is under 2,000, *i. e.*, less than 2 per cent. With such a mixed, semicivilized population in some respects, anything like manhood suffrage would, in the belief of many, be impossible and attended with great difficulties. Some of the colonists would even, it is said, prefer the old system of kiesheers to open voting, as under it there were no opportunities for the collection of turbulent mobs.

There is really very little difference between the new constitution and the old. Whether the court of policy consists of ten or sixteen members it can not matter, as the same equal number of officials and elective members and the governor's casting vote remain. The executive council will take away some of the routine work of the court of policy, but, as its deliberations will be held in secret, probably this may be a cause of dissatisfaction at some future period.

Anthony Trollope called this government "a mild despotism tempered by sugar, the governor being the father of his people and the governor's wife the mother." This opinion, although jestingly delivered, fairly represents matters. There is a great want of independence and individual action and a tendency more and more to look to the Government for everything, at the same time grumbling at the taxes which naturally follow. Lately some talk has been going on about opening up the country by railroads and roads, and, of course, as usual, the authorities are blamed because it is not done and done at once.

The fundamental basis of the civil law is the Roman-Dutch code. The criminal law is generally English, the Dutch system having been long abolished. Among the most striking peculiarities in connection with the civil law are the regulations for marriage and inheritance. A marriage with community of goods gives the wife control of half the joint property, which is hers absolutely, she being able to prevent alienation if she chooses. The law of inheritance gives the wife, first, her half and then half of the remainder, after which the children are bound to get half of what is left; there can, therefore, be no such thing as cutting off with a shilling. If a man marries a second time, having children by a former wife, he is bound to perform an act of *verweezing*, to provide for their support. If a man dies intestate, the administrator-general takes over his property and divides it according to law, and, except there may be a little more expense in commissions, the division will be almost the same as if he had made a will.

THE COLORED RACE IN BRITISH GUIANA.

The race designated and known in the United States as colored is here known and designated as follows, viz: Black, Cob, Mulatto, Mustee, Costee, and Fustee. But for the purposes of this report it is deemed proper to follow the designation familiar to Americans; hence in the word "colored" the six designations above are embraced.

To understand the present condition of the British Guiana colored man it is necessary to revert to 1838, when slavery was finally abolished throughout the British dominions. The number of slaves on the plantations before that time amounted to between 60,000 and 70,000, engaged in raising crops of cotton, coffee, and sugar, which realized nearly £2,000,000 annually. The slave, I am told by the most liberal and disinterested persons, was, on the whole, very comfortable. He was provided with a hut, a piece of ground for growing provisions, regular allowances of salt meat or fish, and as much clothing as he really required. On Saturday he worked in his provision ground and on Sunday brought his produce to market, and the supply of plantains, yams, fruits, feathered stock, and even pigs was generally obtained from the slaves. Many saved money, and some even went so far as to buy slaves of their own, whom they are said to have rather harshly treated. It has been frequently affirmed that, with the legal protection which he enjoyed and the fostering care of his master, whose self-interest alone would make him look after his "property," the colored man was in a better condition than he is now.

Emancipation was, it is said, to the colored man a doubtful blessing. He knew nothing of the duties of a citizen. To be a freeman was to be, like his master, the occupier of a large house, with, as he supposed, nothing to do but to eat and drink and enjoy himself. So soon as he became free he began to take things easy, working when and as long as he pleased, and caring little or nothing for the responsibilities of a freeman. If he had a wife and children, "massa" would, he supposed, look after them as he had done before; as for himself, he would take life easy. He continued, it is said, to go to his former master for his allowances of salt fish and other things, and when they were refused unless he worked regularly, he became abusive, going so far as to say that the "Queen" would see him righted. Then the planter tried to take away his house and provision ground, with a view to compel him to work, but, when this was done, there were general strikes. Unfortunately, perhaps, for both parties, the planter could not be independent. A plantation in British Guiana can not be neglected, even for a few weeks. The dams in front and back must be kept up, as well as the drainage, otherwise the whole estate would be ruined. It followed, therefore, that the planters began to bid against each other for the services of their late slaves and offered wages beyond what the estate could afford, as well as the old allowances. But even this did not induce the colored man to work regularly, while the feeling in England against anything like bondage prevented any law being enacted which would coerce him in any way, even so far as an annual engagement.

The plantations were at this time stocked with fruit trees, while plantains and bananas were very plentiful. The slaves naturally looked upon these trees as common property, and, as there was always more than enough, the planter allowed them to pick as much as they pleased. When they became free they continued, as before, to take the fruit, as also other things, as a right, neither caring nor supposing that it was necessary to give any equivalent. In a tropical climate like this a man may live almost on fruit, so that there was nothing left for the planters but to destroy the trees or allow them to perish by neglect. Thus the grassy dams of the plantations, which are said to have been beautiful avenues of fruit trees, gradually became the bare mud embankments which are seen to-day, and which make a sugar estate so monotonous and unpicturesque.

The decade between 1840 and 1850 witnessed the downfall of the old proprietary body. Plantations were abandoned on every hand, while almost all that remained in cultivation fell into the hands of English capitalists, who, holding mortgages, kept them in working order in hopes of better times. The few industrious colored men who had gleaned a rich havest in the competition for their services now bought a fair number of the plantations, which they divided among themselves, and which now form the villages. This, of course, tended more and more to reduce the amount of labor at command, so that estates became almost valueless. As for the colored people, so long as they had money and retained a remnant of their industrious habits, they worked their plantations in common, but very soon, falling out among themselves, the dams and drainage became defective, and the villages became little better than swamps. The Government, however, has taken them in hand during the last twenty years, and they are now somewhat better; but it is still nothing out of the common to hear, after a few days' heavy rain, that the east coast villages are under water. Most of them are in a wretched state, the little huts standing on piles (as all houses do here) on a bare piece of land, which is dry mud choked with leaves at one season and soft, sticky clay or dirty water at another, in many cases without a bush or tree to enliven its barrenness. The sanitary condition of these villages is said to be very bad, and if it were not for the heavy rains, which give them such thorough scourings, they would be almost uninhabitable. Pigs and fowls also assist in removing the filth, and, as there are hardly any inclosures, these range everywhere and often clear up the filth almost as soon as it appears. Carrion crows do a great deal, also, in removing drowned animals, which otherwise would pollute the air.

In speaking generally it should not be omitted that here and there a few of the more industrious have good houses and try to improve their surroundings. These, however, are handicapped by the carelessness of their neighbors, who allow pigs and goats to range everywhere, not caring whether they may destroy the young crops of their neighbors. This proves so aggravating that the industrious villager often gives up in despair and abandons his attempts at improvement. How these idle, indolent people live is a mystery. Now and then they work for a day or two on an estate, but, being so independent, they often spend a day or two in searching for that which pays a trifle higher wages, not considering the time lost in the search for work. Children suffer greatly from hunger, rarely getting more than one meal a day, when the father or mother return in the evening from work, and when they are idle, perhaps begging from a neighbor. It is not an uncommon thing to see a woman with a crying child follow a man to a rum shop, trying to obtain a few cents before he spends it all. Her language is something so entirely beyond anything usually expected from a woman that a newcomer is shocked to the last degree. Quarrels and fights are common, bottle-throwing, cutting with knives and razors, and biting being the usual modes of attack. The women are said to have less self-respect than the men, and on the two or three occasions when riots have taken place in Georgetown they have been among the ringleaders.

Education is almost free, the Government spending about $35,000 per annum in assisting the various denominational schools. Most of the schoolmasters are colored, and they appear to be very suitable for primary teaching, having good memories, and when once launched into a groove are said to be strict disciplinarians.

As a heritage of slavery, agricultural labor is considered low and degrading by the colored man. It has therefore followed that Georgetown is flooded with a mediocre class of these people, all trying to get situations as store or other clerks. The wages they receive are often less than they could earn as laborers; but they do not mind this, as they consider themselves so much more respectable. This, however, is common among white people in many places.

Many tell me they are not fit for any position of responsibility; but this ocular evidence refutes, as there are many colored men here who have attained the highest position in the various avocations of life and who discharge their trusts with as much credit as any white man could.

Social equality obtains here. There appears to be little or no prejudice on account of color. Intelligence, education, and character seem to govern this.

Mechanics among the colored people are said to be inferior and lacking pride in their work. Good workmen have a large field, but this class is said to care little whether the work is creditable or not so long as they get paid for it.

Many of the colored men besides those in the villages are possessed of landed property, but this is of very little value; in fact, land is almost worthless, even a sugar plantation selling for the value of the crop on the ground, hardly any of them realizing the cost of the buildings and machinery. Government land can be bought for $1 an acre, but many landowners would be glad to get as much as that. House property in Georgetown is mostly in the hands of the Portuguese, very few black men being possessed of buildings.

Reverting to the downfall of the old estate proprietors, it must not be supposed that they gave up without a struggle. As early as 1834, in anticipation of the four years' apprenticeship, in which the hours of compulsory labor were reduced from nine to seven and a half a day, the more farsighted ones began to look around for places whence labor could be procured. Several places were tried, immigrants being brought from Malta, Cape Verde Islands, Madeira, Africa, China, and finally India. The Europeans did not make good laborers, but the Portuguese from Madeira settled in the country and have become an important factor in its development. The number of Africans (who were slaves liberated from captured vessels by British cruisers) was unfortunately too small to be of much service, while the first East Indian coolies turned out very poorly. On account of the feeling in England against anything like binding engagements, the coolies did much as they liked, in many cases ending by becoming vagrants. This caused a great stir, and immigration was stopped for a time; but these difficulties were gradually overcome, the system becoming more and more easily managed, until now it may be considered as almost perfect. This is only another name for slavery. About 5,000 East Indians arrive annually, the cost being divided between the Government and the planters in the proportion of one-third by the former and two-thirds by the latter, the whole amounting to about £90,000 ($438,000) per annum.

As an inheritance from the period before emancipation, the colored men of British Guiana is wanting in independence and self-reliance. In the same way that he formerly looked to his master for everything he now depends on the Government. When his village is inundated, he does nothing himself, and, notwithstanding that there may be enough able-bodied men to repair the dam or open the drainage, nothing is done. In many of the villages the Government has taken these matters in hand, imposing taxes to keep them up; but a very large number of the people can not, or will not, pay, and if their land is sold it brings little or nothing, so that they become a burden to the revenue. Up to the last few years the losses on the administration of the villages were considerable, but now the arrears of taxes only amount to about 20 per cent.

The revenue of the colony for the fiscal year 1889–'90 amounted to £522,767 2*s.* 1½*d.*, the greater portion thereof being derived from import duties. Nearly half of the remainder was derived from rum duties and licenses, the balance being made up of other licenses, fees, fines, royalty on gold, etc. For such a small population the official element is very large, most of the clergymen of all denominations and medical officers being Government employés. With a taxation of about $9 per head, it follows that this must fall very heavily on some classes. The colored man is said to pay his proportion largely in the shape of rum duties, but I must confess, after nearly a year's residence in Georgetown, that I have not seen a drunken colored man. Other classes pay more heavily in the way of store licenses (every store requiring one), as well as imposts on horses, carriages, dogs, etc. The plantations may be considered as taxed very heavily by having to maintain the public roads through them, while the towns and villages generally pay 2 per cent on the appraised value of the lots and buildings for road drainage, lighting, etc.

The only article of food grown to any extent in the colony is the plantain. This, together with salt fish, pork, or beef, has hitherto been the staple food of the colored man. Latterly, however, a majority of the more industrious of the villagers has gone to work in the gold diggings, and plantains have become very scarce and high in price, a bunch formerly costing 24 to 32 cents now being sold for 80 cents to $1. It follows, therefore, that the colony has become more and more dependent on imported provisions, of which a large proportion is brought from the United States. The only article of food imported from elsewhere in quantity is rice, which is the staff of life for the East Indian coolie. This could easily be grown in the colony, there being plenty of land well suited to its cultivation, but very little has been done in developing the article. The fact is, generally the only capitalists connected with the colony are embarked in the sugar industry, and it would be useless to expect them to give this up, while the lower classes, including the small freeholders, never originate any cultivation on their own account. The colored man is imitative in everything, two or three of them growing sugar cane on their own account for manufacture in their small mills or to sell to neighboring estates, while many other articles could be grown to far better profit.

Having to depend almost entirely on imported provisions, it follows that living is expensive, anything beyond the barest necessaries costing fancy prices. House rent is also high, but clothing is cheaper than might be expected. Altogether the comforts and luxuries which are easily procurable in other countries are here either wanting or beyond the means of all but very few. Salaries, especially of officials, are therefore higher than in the United States or Europe. The governor is paid £5,000; the lieutenant-governor, as government secretary, £1,350; surgeon-general, £1,200; chief justice, £2,500; two judges and attorney-general, £1,500 each; while several other officials receive £1,000 each.

IMPORTS.

Table showing the imports at Demerara for the year ended December 31, 1891.

Articles.	Quantity.	Value entered.	Rate of duty.	Countries whence imported.
Arrowroot.....................lbs..	486,456	$16,881.09	Half a cent per pound...	United Kingdom, British West Indies, East India, Colombia, and Bermuda.
Bacon.........................do...	22,452	2,875.98	2 cents per pound.........	United Kingdom and United States.
Beef:				
Dried or smoked.....do...	5,052	536.90	.........do.........................	United Kingdom, United States, British West Indies, and British North America.
Pickled..bbls. of 200 lbs..	6,479	80,129.65	$1.50 per barrel.............	Do.
Blue (laundry)................lbs..	20,250	685.66	Half a cent per pound...	United Kingdom.
Bran, middlings, and shorts ....bush..	5,083	1,613.56	5 cents per bushel..........	United Kingdom and United States.
Bread, biscuits, and crackers ....lbs..	491,654	27,555.01	Half a cent per pound...	Do.
Bricks...........................No..	1,536,400	34,543.05	$1 per 1,000..................	United Kingdom and British West Indies.
Buckets and pails..........doz..	5,558	7,402.23	25 cents per dozen.........	United Kingdom and United States.
Butter...........................lbs..	510,232	92,926.46	2 cents per pound.........	United Kingdom, United States, British West Indies, France, British North America, Holland, and Portuguese possessions.
Butterine and oleomargarine ....lbs..	31,322	3,552.72	.........do.........................	United States and United Kingdom.
Candles:				
Tallow...................do...	29,782	2,860.12	1 cent per pound..........	United States.
Other than tallow....do...	119,971	12,266.61	5 cents per pound..........	United Kingdom.
Cattle............................No..	542	22,030.62	$5 per head...................	United Kingdom, Venezuela, and British West Indies.
Cement.......................bbls..	14,702	28,194.59	25 cents per barrel........	United Kingdom.
Cheese..........................lbs..	326,987	43,335.59	2 cents per pound	United Kingdom, United States, Holland, British North America, Venezuela, Portuguese possessions, and British West Indies.
Chloral hydrate............do...	17	16.98	30 cents per pound.........	United Kingdom.
Chlorodyne..................do...	55	264.96	72 cents per pound.........	Do.

Table showing the imports at Demerara for the year ended December 31, 1891—Continued.

Articles.	Quantity.	Value entered.	Rate of duty.	Countries whence imported.
Chocolate.....................lbs..	2,672	$1,437.07	4 cents per pound..........	United Kingdom, United States, British West Indies, Holland, and Portuguese possessions.
Cigars and cigarettes......do...	9,805	20,274.28	$1.20 per pound............	United Kingdom, United States, Holland, Spanish West Indies, and Portuguese possessions.
Coal:				
In hogsheads..........No..	153	934.60	32 cents per hogshead....	United Kingdom.
Loose...................tons..	50,114	207,636.81	50 cents per ton............	United Kingdom and British North America.
Cocoa.............................lbs..	87,169	8,352.80	1½ cents per pound.......	Dutch Guiana and British West Indies.
Coffee...........................do...	228,335	38,284.02	.........do.........................	Dutch West Indies, United States, British West Indies, United Kingdom, and Venezuela.
Collodion.......................do...	3	40.63	$5 per pound................	United Kingdom.
Confectionery................do...	104,673	14,664.02	5 cents per pound..........	United Kingdom, United States, and Portuguese possessions.
Cordage.......................cwts..	3,296	33,405.32	$1 per cwt....................	United Kingdom, United States, and British possessions.
Corks, cut.......................lbs..	19,417	4,670.51	10 cents per pound.......	United Kingdom, United States, and Portuguese possessions.
Corn...........................bush..	45,646	36,069.19	10 cents per bushel.......	United States.
Corn brooms.................doz..	1,085	1,559.87	20 cents per dozen.........	Do.
Corn meal and oatmeal..lbs..	2,165,644	42,587.15	One-fourth of 1 cent per pound.	United States, United Kingdom, and British West Indies.
Crushed and ground feed.bu..	6,285	4,392.82	10 cents per bushel.......	United States and British West Indies.
Dogs...............................No..	61	798.50	$5 per dozen................	United Kingdom, British West Indies, and United States.
Donkeys.......................do...	6	70.50	$1 per head..................	Venezuela.
Dynamite, gun cotton, lithofracteur, etc..............lbs..	41,490	7,754.78	4 cents per pound..........	United Kingdom, United States, British West Indies, and Portuguese possessions.
Essences.....................pints..	461	645.61	30 cents per pint...........	United Kingdom and United States.
Ether, sulphuric..........gals..	54	159.66	$3 per gallon................	United Kingdom.
Fish..............................cwts..	69,065	310,357.33	50 cents per cwt............	United Kingdom, British North American possessions, United States, British West Indies, and Venezuela.
Pickled:				
Salmon.................. .....bbls of 200 lbs..	408	4,334.00	$2 per barrel.................	British West Indies, Newfoundland, United States, and British North America.
Mackerel.........do...	759	6,125.36	$1 per barrel................	British North America and United States.
Other kinds......do...	5,409	17,353.78	25 cents per barrel.........	British North America, United States, Newfoundland, British West Indies, Portuguese possessions, and Bermuda.
Preserved in tins......lbs..	349,040	47,049.58	1 cent per pound...........	United Kingdom, United States, British North America, and Portuguese possessions.
Smoked.................do...	63,350	2,737.22	Half a cent per pound...	British North America, British West Indies, and United States.

Table showing the imports at Demerara for the year ended December 31, 1891—Continued.

Articles.	Quantity.	Value entered.	Rate of duty.	Countries whence imported.
Flour.........bbls..	168,031	$753,841.29	$1 per barrel.........	United States, British West Indies, British North America, and United Kingdom.
Ganja.........lbs..	10,165	8,330.99	$4 per pound.........	United Kingdom.
Garlic.........do...	94,980	3,874.55	One-fourth of 1 cent per pound.	Portuguese possessions.
Gelatin.........do...	421	254.51	5 cents per pound.........	United Kingdom.
Ghee.........do...	63,748	6,843.79	2 cents per pound.........	United Kingdom and East India.
Ginger.........do...	42,424	2,603.78	.........do.........	United Kingdom, East India, and Portuguese possessions.
Goats.........No..	47	140.76	25 cents per head.........	British West Indies.
Grain, not enumerated, and pulse.........bush..	125,547	146,608.17	5 cents per bushel.........	United Kingdom, East India, United States, British West Indies, and Portuguese possessions.
Gums.........lbs..	2,286	790.96	3 cents per pound.........	United Kingdom.
Gunpowder.........do...	6,155	1,712.96	20 cents per pound.........	Do.
For blasting.........do...	5,500	458.40	1 cent per pound.........	Do.
Hair.........do...	2,767	938.98	5 cents per pound.........	United Kingdom and United States.
Hams.........do...	273,203	31,848.08	2 cents per pound.........	United Kingdom, United States, British possessions, and Portuguese possessions.
Hay.........do...	880,160	5,668.55	10 cents per 100 pounds..	United Kingdom, United States, and British North America.
Honey.........do...	2,473	411.30	5 cents per pound.........	United Kingdom, United States, British West Indies, and Portuguese possessions.
Hoops:*				
Wooden.........No..	172,106	1,868.00	$1.50 per 1,000.........	United Kingdom, French West Indies, and United States.
Iron.........cwts..	76,270	3,496.99	10 cents per cwt.........	United Kingdom.
Horses.........No..	61	13,776.00	$7 each.........	United Kingdom, British West Indies, British North America, Venezuela, and Dutch West Indies.
Isinglass.........lbs..	385	481.64	5 cents per pound.........	United Kingdom.
Lard.........do...	374,116	25,699.81	1 cent per pound.........	United Kingdom, United States, British North America, and Holland.
Lime:				
Temper.........puncheons..	5,448	34,208.94	50 cents per puncheon...	United Kingdom.
Building.........hhds..	19	94.80	25 cents per hogshead...	Do.
Do.........bags..	22,369	8,302.32	2 cents per bag.........	British West Indies.
Do.........tierces..	25	144.32	18 cents per tierce.........	United Kingdom.
Lumber.........feet..	11,496,315	196,219.90	$2 per 1,000 feet.........	United States and British North America.
Malt:				
In wood.........gals..	128,959	40,961.05	10 cents per gallon.........	United Kingdom, United States, Denmark, and Holland.
In bottles.........qts..	15,010	21,912.25	24 cents per dozen.........	Do.
Do.........pts..	102,154	91,130.49	12 cents per dozen.........	Do.
Matches.........gross..	26,197	16,817.04	60 cents per gross.........	United Kingdom.
Meats preserved in tins...lbs..	90,396	13,106.64	2 cents per pound.........	United Kingdom, United States, British North America, Portuguese possessions, Holland, and France.
Milk preserved in tins...do...	155,620	14,582.62	.........do.........	United Kingdom and United States.

Table showing the imports at Demerara for the year ended December 31, 1891—**Continued.**

Articles.	Quantity.	Value entered.	Rate of duty.	Countries whence imported.
Mules..........No..	282	$36,360.32	$5 per head..........	United States and British West Indies.
Muskets and guns..........do...	1,073	6,951.32	$2 each..........	United States, British West Indies, and United Kingdom.
Oats..........bush..	120,724	74,980.02	5 cents per bushel..........	United Kingdom, British North America, British West Indies, Denmark, Holland, United States, and Portuguese possessions.
Oils..........gals..	572,205	134,117.87	25 cents per gallon..........	United States, United Kingdom, British North America, East India, and France.
Opium..........lbs..	10,675	44,092.23	$4 per pound..........	United Kingdom.
Paints..........cwts..	4,224	21,920.09	25 cents per cwt..........	United Kingdom and United States.
Pepper..........lbs..	27,206	3,053.78	1 cent per pound..........	United Kingdom and East India.
Percussion caps..........No..	1,183,950	617.14	4 cents per 100..........	United Kingdom.
Pickles and sauces..........qts..	422	205.26	4 cents per quart..........	United Kingdom and Dutch Guiana.
Do..........pts..	15,491	2,745.03	2 cents per pint..........	United Kingdom, Dutch Guiana, British North America, and Portuguese possessions.
Pistols and revolvers..........No..	21	120.98	$5 each..........	United Kingdom and United States.
Pitch..........bbls..	758	1,314.38	50 cents per barrel..........	Do.
Pork..........bbls of 200 lbs..	14,855	170,220.05	$1.50 per barrel..........	United States and Newfoundland.
Rice..........lbs..	47,648,564	923,300.71	25 cents per 100 pounds..	United Kingdom, East India, and British West Indies.
Resin..........bbls..	34	88.61	50 cents per barrel..........	United Kingdom and United States.
Sago..........lbs..	139,102	4,485.69	Half a cent per pound...	United Kingdom and East India.
Saltpeter..........do...	224	12.30	1 cent per pound..........	United Kingdom.
Shooks..........packs..	6,553	17,325.70	8 cents per pack..........	United Kingdom and United States.
Shot..........lbs..	31,463	1,217.87	2 cents per pound..........	United Kingdom.
Slates for roofing..........No..	30,048	1,182.48	$1 per 1,000..........	Do.
Snuff..........lbs..	1,660	1,427.83	75 cents per pound..........	Do.
Soap, common..........do...	1,684,186	46,843.21	Half a cent per pound....	United Kingdom, United States, and British West Indies.
Soaps, soap powders, and fancy toilets..........lbs..	20,605	4,653.45	2 cents per pound..........	United Kingdom, United States, and British North America.
Spices and seeds, not garden..........lbs..	196,206	8,213.29	1 cent per pound..........	United Kingdom, United States, East India, and Portuguese possessions.
Starch..........do...	13,453	510.91	2 cents per pound..........	United Kingdom and Colombia.
Staves:				
W. O..........No..	522,890	29,922.50	$2 per 1,000..........	United States and British possessions.
R. O..........do...	22,010	906.39	$1.50 per 1,000..........	British North America.
Sugar, refined..........lbs..	26,477	1,253.42	4 cents per pound..........	United Kingdom.
Tallow..........do...	246,662	14,266.77	1 cent per pound..........	United Kingdom and United States.
Tapioca..........do...	19,236	821.11	Half a cent per pound...	United Kingdom.
Tar..........bbls..	938	3,136.05	50 cents per barrel..........	United Kingdom and United States.
Tea..........lbs..	59,257	12,167.54	12 cents per pound..........	United Kingdom, United States, and East India.

Table showing the imports at Demerara for the year ended December 31, 1891—Continued.

Articles.	Quantity.	Value entered.	Rate of duty.	Countries whence imported.
Tobacco:				
Leaf—				
In packages of 800 lbs. and over...lbs..	699,006	$43,677.03	30 cents per pound........	United States.
In packages of less than 800 lbs....lbs..	620	420.32	45 cents per pound........	Do.
Manufactured........do...	47,849	27,377.98	.........do........................	United States and United Kingdom.
Tobacco pipes, clay.....gross..	3,651	2,235.26	$1 per gross..................	United Kingdom and Holland.
Tongues, pickled...........lbs..	13,765	1,880.25	2 cents per pound..........	United States and United Kingdom.
Turpentine.....................gals..	5,557	3,012.66	18 cents per gallon........	Do.
Twine.............................lbs..	60,994	11,459.35	2 cents per pound..........	Do.
Varnish:				
Not containing spirits ....gals..	2,372	1,880.55	18 cents per gallon........	Do.
Containing spirits....do...	1,174	2,055.33	50 cents per gallon........	Do.
Vegetables, preserved....lbs..	57,878	5,995.37	2 cents per pound..........	United Kingdom, United States, and Portuguese possessions.
Vinegar:				
In bottles...............gals..	97	45.40	25 cents per gallon........	United Kingdom.
Do...............do...	6,533	1,796.93	10 cents per gallon........	United Kingdom, French West Indies, and Holland.
In barrels ....do...	301	199.28	25 cents per gallon........	United Kingdom and Holland.
Do...............do...	1	3.60	72 cents per gallon........	United Kingdom.
Wax:				
Bees'.......................lbs..	536	148.64	6 cents per pound..........	Do.
Mineral and paraffin.do...	367	35.56	2 cents per pound..........	United Kingdom and United States.
Whiting.......................do...	9,099	26.26	Half a cent per pound...	United Kingdom.
Wine and spirits and patent medicines containing spirits:				
Wines—				
In barrels:				
Claret.......gals..	4,217	3,136.25	50 cents per gallon........	United Kingdom, France, and Portuguese possessions.
Do...do...	50	100.70	80 cents per gallon........	United Kingdom.
Tarragona.do...	13,810	5,809.28	50 cents per gallon........	Do.
Do ...do...	26,021	12,107.04	80 cents per gallon........	Do.
Other kinds .... gals..	5,147	7,947.65	......do..........................	United Kingdom, Portuguese possessions, Newfoundland, and Holland.
In bottles:				
Claret—				
Quarts.doz..	458	1,150.34	$1 per dozen................	United Kingdom, France, and Holland.
Pints...do...	1,404	1,814.56	50 cents per dozen..........	United Kingdom, France, Germany, and United States.
Quarts.do...	87	442.98	$2 per dozen................	United Kingdom and France.
Pints...do...	268	739.46	$1 per dozen................	Do.
Other kinds—				
Quarts.doz..	1,554	9,600.13	$2 per dozen................	United Kingdom, France, Portuguese possessions, and Germany.
Pints...do...	1,610	7,666.90	$1 per dozen................	United Kingdom, France, Holland, and United States.

Table showing the imports at Demerara for the year ended December 31, 1891—Continued.

Articles.	Quantity.	Value entered.	Rate of duty.	Countries whence imported.
Wine and spirits, etc.—Continued.				
Brandy ....gals..	17,314	$56,444.51	$2.50 per gallon............	United Kingdom, France, and Germany.
British spirits.........do...	511	2,450.78	.........do.........................	United Kingdom.
Foreign spirits........do...	56	269.84	.........do.........................	United States and France.
Gin.............................do...	24,155	29,459.72	.........do.........................	Holland and United Kingdom.
Whisky.................do...	19,459	41,710.31	.........do.........................	United Kingdom, British North America, and United States.
Liqueurs and cordials .... gals..	1,770	13,658.34	.........do.........................	United Kingdom, British West Indies, Holland, Germany, and France.
Do...............do...	11	105.04	$4 per gallon................	United Kingdom, United States, Holland, Germany, and France.
Perfumed spirits.....do...	1,446	12,232.70	$3 per gallon................	United Kingdom.
Naphtha and methylic alcohol................gals..	306	273.08	50 cents per gallon........	Do.
Do...............do...	6	17.96	$2.50 per gallon............	United States and British North America.
Patent medicines containing spirits.....gals..	90	2,041.80	.........do.........................	Do.
Yeast and yeast cakes....lbs..	1	.24	6 cents per pound.........	United Kingdom.
Blankets, dress materials, flannels, piece goods, prints, sheetings, shoes and boots, shirts and shirtings, tablings, ticks or mattresses, tweeds, underclothing, hardware, and cutlery and tools (January 1 to March 31).	....	301,680.06	7 per cent ad valorem...	Principally from the United Kingdom and dependencies; only a small proportion from the United States.
Miscellaneous articles:				
January 1 to March 31...	....	163,064.80	10 per cent ad valorem...	About 20 per cent from the United States, 25 per cent from foreign countries, and the balance from the United Kingdom and dependencies.
April 1 to December 31..	....	1,646,950.05	8 per cent ad valorem...	About 25 per cent from the United States, 20 per cent from foreign countries, and the balance from the United Kingdom and dependencies.
Free of duty, such as manures, ground provisions, salt, fresh meats and vegetables, ice, sheep, poultry, machinery, sewing machines, potatoes, printing materials for periodicals and newspapers, presses, types, etc.	....	1,460,435.12	....	30 per cent from the United States, about 20 per cent from foreign countries, and the balance from the United Kingdom and dependencies.
Goods bonded for exportation and transshipped.	....	108,344.16	....	40 per cent from the United States, 25 per cent from Dutch Guiana, and the balance from the United Kingdom and other countries.

RECAPITULATION.

Description.	Value entered.	Duties collected.
Goods paying specific duty	$4,307,640.74	$1,074,098.89
Goods paying 7 per cent ad valorem	301,680.06	21,117.60
Goods paying 10 per cent ad valorem	163,064.80	16,306.48
Goods paying 8 per cent ad valorem	1,646,950.05	131,756.48
Wines and spirits	209,179.39	203,241.59
Goods admitted free	1,460,435.12	
Goods liable to duty bonded for exportation or transshipped	108,344.16	
Total	8,197,294.32	1,446,520.56
Imports from the United Kingdom	4,451,507.79	
Imports from British colonies	1,519,984.13	
Imports from the United States	1,799,689.75	
Imports from other countries	426,112.65	
Total	8,197,294.32	

Table showing the exports from Demerara for the year ended December 31, 1891.

Articles.	Quantity.	Value, including costs and charges.	Countries whither exported.
Arrowroot......pounds	35,942	$1,320.00	French Guiana.
Balata:			
Native......do	116,337	32,672.30	United Kingdom.
Foreign......do	179,620	43,196.90	Do.
Beef......barrels	709	8,749.89	Dutch Guiana, French Guiana, and French West Indies.
Bran......bushels	14	5.74	French Guiana.
Bread, biscuits, and crackers:			
Native......pounds	44,080	2,670.40	British West Indies and Dutch Guiana.
Foreign......do	21,473	1,482.81	British West Indies, East India, Dutch Guiana, Dutch West Indies, and French Guiana.
Bricks......number	3,000	74.50	Dutch Guiana.
Buckets and pails......dozens	61	146.24	Do.
Bullion:			
Raw gold—			
Native......ounces	101,298	1,891,389.24	United Kingdom.
Foreign......do	303	5,256.95	Do.
Coin	......	206,020.06	United Kingdom, British West Indies, and France.
Butter......pounds	22,523	3,201.34	British West Indies, Dutch Guiana, French Guiana, and Venezuela.
Candles:			
Tallow......do	1,900	200.64	Dutch Guiana.
Other......do	2,142	296.11	United Kingdom and Dutch Guiana.
Cattle:			
Native......number	86	2,115.47	Dutch Guiana.
Foreign......do	44	1,640.47	French Guiana.
Cement......barrels	69	178.48	Dutch Guiana.
Charcoal, native......bags	54,754	36,759.89	British West Indies and Bermuda.
Cheese......pounds	1,033	156.76	Dutch Guiana and French Guiana.
Chocolate......do	120	33.60	British West Indies.
Cigars and cigarettes......do	57	242.70	United Kingdom, British West Indies, British North America, and Dutch Guiana.
Coals, loose, for ships' stores......tons	3,167	14,894.75	British West Indies, Dutch Guiana, French Guiana, Venezuela, and Portuguese possessions.
Cacao:			
Native......pounds	50,443	6,514.66	United Kingdom.
Foreign......do	18,040	14,894.75	United Kingdom, United States, and British possessions.

Table showing the exports from Demerara for the year ended December 31, 1891—Continued.

Articles.	Quantity.	Value, including costs and charges.	Countries whither exported.
Cocoanuts, native...number...	184,659	$6,514.66	United Kingdom.
Coffee:			
Native...pounds...	9,633	1,964.80	Do.
Foreign...do......	8,389	2,459.59	French Guiana and Dutch Guiana.
Confectionery, foreign...do......	1,044	115.26	Do.
Cordage (ship stores), foreign...cwts...	24	178.96	United Kingdom, Dutch Guiana, and French Guiana.
Corks, foreign...pounds...	4,963	298.88	British West Indies, Dutch Guiana, and French Guiana.
Corn:			
Native...bushels...	484	386.88	British West Indies.
Foreign...do......	1,644	1,351.28	British West Indies, Dutch Guiana, French Guiana, and Venezuela.
Corn brooms, foreign...dozens...	49	85.80	Dutch Guiana.
Corn meal and oatmeal, foreign. pounds...	62,308	1,341.05	Dutch Guiana and French Guiana.
Donkeys, foreign...number...	2	50.05	Dutch Guiana and the United States.
Fiber, native...pounds...	23,235	674.47	United Kingdom and British West Indies.
Fish, foreign:			
Dried...cwts...	5,168	22,227.14	British West Indies, Dutch Guiana, and French Guiana.
Pickled...barrels of 200 pounds...	50	560.14	Dutch Guiana.
Mackerel...do......	23	91.14	Dutch Guiana and British West Indies.
Herrings and other kinds...do......	101	325.50	Dutch Guiana, British West Indies, and French Guiana.
Smoked...pounds...	877	34.50	Dutch Guiana.
Preserved in tins...do......	13,167	2,007.83	Dutch Guiana, British West Indies, and French Guiana.
Firewood, native...cords...	353	750.83	British possessions.
Flour, foreign...barrels...	10,675	55,800.35	British possessions, Dutch Guiana, French Guiana, and Venezuela.
Ganja, foreign...pounds...	350	214.50	Dutch Guiana.
Garlic, foreign...do......	7,435	515.50	Dutch Guiana, British West Indies, and French Guiana.
Ghee, foreign...do......	32,174	3,399.64	Dutch Guiana and British West Indies.
Ginger, foreign...do......	5,317	356.14	United Kingdom and Dutch Guiana.
Grain, not enumerated, and pulse, foreign...bushels...	7,350	11,612.58	British West Indies, Dutch Guiana, French Guiana, and French West Indies.
Ground feed, foreign...do......	42	35.50	Dutch Guiana.
Gums other than balata, native...pounds...	5,074	737.39	United Kingdom.
Hams, bacon, etc., foreign...do......	10,543	743.71	Dutch Guiana and French Guiana.
Hay, foreign...do......	5,272	74.25	Do.
Hides:			
Foreign...number...	2,672	4,194.62	British West Indies and French West Indies.
Native...do......	7,775	10,036.37	French West Indies.
Hoops, foreign:			
Iron...cwts...	35	126.14	Dutch Guiana.
Wood...number...	1,800	35.40	Do.
Horses, foreign...do......	2	470.40	Dutch Guiana and British West Indies.
Isinglass, native...pounds...	5,612	1,771.40	United Kingdom.
Lard, foreign...do......	10,425	931.25	British West Indies and French Guiana.
Lime, foreign:			
Building...bags...	43	30.20	Dutch Guiana.
Temper...puncheons...	91	586.20	Do.
Lumber (pitch and white pine), foreign...feet...	246,831	5,822.43	Dutch Guiana, French Guiana, and British West Indies.
Machinery, foreign...	....	1,116.60	United Kingdom and British West Indies.
Malt liquor:			
In wood, foreign...gallons...	130	49.60	Dutch Guiana.

Table showing the exports from Demerara for the year ended December 31, 1891—Continued.

Articles.	Quantity.	Value, including costs and charges.	Countries whither exported.
Malt liquor—Continued.			
In bottles—			
Quarts … dozens …	240	$274.60	Dutch Guiana.
Pints … do …	4,161	3,512.01	Dutch Guiana, British West Indies, and French Guiana.
Manures, foreign … tons …	64	816.01	Dutch Guiana and British West Indies.
Matches, foreign … gross …	1,390	599.57	Do.
Meats preserved in tins, foreign … pounds …	3,930	514.32	Dutch Guiana, East India, and French Guiana.
Molasses:			
Foreign … puncheons …	322	4,630.65	British North America, United States, French Guiana, and Portuguese possessions.
Native … do …	13,989	212,492.91	British possessions, Holland, French Guiana, French West Indies, and Portuguese possessions.
Milk preserved in tins, foreign … pounds …	5,616	539.55	Dutch Guiana and French Guiana.
Mules, foreign … number …	5	790.55	Do.
Muskets and guns, foreign … do …	3	120.55	Do.
Oats, foreign … bushels …	4,479	3,404.90	Dutch Guiana, French Guiana, and British West Indies.
Oils, foreign … gallons …	14,814	3,485.40	British possessions, Dutch Guiana, French Guiana, French West Indies, and Venezuela.
Old copper, brass, lead, etc., foreign … pounds …	415,774	6,134.97	United Kingdom, British North America, United States, and French West Indies.
Old iron, foreign … tons …	80	400.97	British North America.
Oleomargarine, foreign … pounds …	17,400	2,005.80	Dutch Guiana.
Onions, foreign … do …	463,982	11,963.09	British West Indies, Dutch Guiana, Dutch West Indies, French Guiana, French West Indies, and Venezuela.
Opium, foreign … do …	1,375	5,859.20	Dutch Guiana and French Guiana.
Paints, foreign … cwts …	66	384.97	British possessions, Dutch Guiana, and Venezuela.
Paper (straw), foreign … reams …	599	167.93	Dutch Guiana and French Guiana.
Pepper (black), foreign … pounds …	1,483	160.36	Do.
Pistols, foreign … number …	2	25.36	Dutch Guiana.
Pitch, foreign … barrels …	21	60.40	Do.
Plantains, native … bunches …	130	65.40	British West Indies.
Pork, foreign … barrels of 200 pounds …	618	8,037.75	Dutch Guiana and French Guiana.
Potatoes, foreign … barrels …	1,346	4,054.99	Dutch Guiana, French Guiana, British West Indies, French West Indies, and Venezuela.
Rice, foreign … pounds …	1,837,402	39,486.90	Do.
Rum:			
Foreign … puncheons …	80	4,000.00	Colombia and the United Kingdom.
Native … do …	22,101	1,281,435.30	United Kingdom, British possessions, Holland, Dutch West Indies, French West Indies, French Guiana, Colombia, Danish West Indies, United States, and France.
Sago, foreign … pounds …	45	1.80	Dutch Guiana.
Salt, foreign … barrels …	366	486.27	Dutch Guiana and French Guiana.
Sheep, foreign … number …	4	50.27	French Guiana.
Shingles, native … do …	5,419,100	18,511.85	French Guiana, French West Indies, British West Indies, and Dutch Guiana.
Shooks, foreign … packs …	200	204.10	Dutch Guiana.
Shot, foreign … pounds …	3,732	209.22	Dutch Guiana and French Guiana.
Soap, foreign … do …	31,195	1,182.66	Dutch Guiana and British West Indies.
Spices and seeds (not garden seeds), foreign … pounds …	7,717	396.63	Dutch Guiana, French Guiana, and French West Indies.

Table showing the exports from Demerara for the year ended December 31, 1891—Continued.

Articles.	Quantity.	Value, including costs and charges.	Countries whither exported.
Starch:			
Foreign .... pounds...	18,501	$586.30	French Guiana.
Native .... do......	1,600	90.20	Do.
Staves, foreign:			
W.O. .... number...	60,000	3,300.20	British West Indies and French West Indies.
R.O. .... do......	195,200	8,640.20	Do.
Sugar:			
Refined, foreign .... pounds...	5,477	309.77	French Guiana.
Not refined—			
Foreign...tons of 2,240 pounds...	406	23,098.52	United Kingdom and United States.
Native .... do......	116,969	7,981,158.33	United States (two-thirds, valued at $5,316,450.49), the United Kingdom (not quite one-third), British North America, and foreign countries.
Sugar bags, foreign .... bales...	22	723.74	Dutch Guiana.
Tallow, foreign .... pounds...	9,226	527.10	Do.
Tar, foreign .... barrels...	40	123.30	Do.
Tea, foreign .... pounds...	4,835	847.22	Dutch Guiana, United States, and French Guiana.
Timber, native .... cubic feet...	312,801	96,329.62	United Kingdom, British West Indies, and Belgium.
Tobacco, foreign:			
Leaf .... pounds...	17,032	1,068.14	United States, Dutch Guiana, and Haiti.
Manufactured .... do......	2,864	691.12	British West Indies, Dutch Guiana, East India, and French Guiana.
Tobacco pipes (clay), foreign......gross...	108	81.80	East India and Dutch Guiana.
Turpentine, spirits of, foreign...gallons...	8	9.50	Dutch Guiana.
Unenumerated items:			
Foreign	....	102,552.57	United Kingdom, British possessions, Dutch Guiana, French West Indies, French Guiana, and the United States.
Native	....	8,409.91	United Kingdom, British possessions, Dutch Guiana, French West Indies, and French Guiana.
Varnish, foreign .... gallons...	50	56.44	Dutch Guiana.
Vegetables preserved in tins, foreign .... pounds...	300	27.44	Do.
Vinegar, foreign .... gallons...	125	47.45	Dutch Guiana and British West Indies.
Wines and spirits:			
Wines—			
In barrels .... do......	5,264	2,731.97	United Kingdom, Dutch Guiana, and British West Indies.
In bottles:			
Quarts .... dozens...	34	261.80	British West Indies, United States, and Dutch Guiana.
Pints .... do......	3	16.24	Dutch Guiana.
Brandy, foreign .... gallons...	680	1,263.25	United Kingdom, Dutch Guiana, United States, Venezuela, and British West Indies.
Gin, foreign .... do......	162	359.50	British possessions and the United States.
Liqueurs and cordials—			
Foreign .... do......	32	191.50	British possessions and Dutch Guiana.
Native .... do......	80	180.50	British possessions and Germany.
Whisky, foreign .... do......	16	53.27	British possessions, Dutch West Indies, Portuguese possessions, and the United States.
Perfumed spirits, foreign......do......	228	377.28	British possessions, United States, Dutch Guiana, and Dutch West Indies.
Total	....	12,156,261.24	

RECAPITULATION.

To—	Foreign exports.	Colonial exports.	Total.
United Kingdom	$236,481.39	$5,622,005.89	$5,858,487.28
British colonies	131,205.24	282,526.89	413,732.13
United States	6,908.69	5,316,689.87	5,323,598.56
Other countries	282,243.15	278,200.12	560,443.27
Total	656,838.47	11,499,422.77	12,156,261.24

NAVIGATION.

Table showing the number and tonnage of vessels entered at the port of Demerara during the year 1891.

From—	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
British.						
United Kingdom	24	17,877	17	11,038	41	28,915
United States			28	8,700	28	8,700
British West Indies	82	91,791	126	13,379	208	105,170
British East India			9	12,782	9	12,782
Canada			42	5,799	42	5,799
Newfoundland			4	587	4	587
French West Indies	1	808	46	4,071	47	4,879
Madeira	1	887	1	320	2	1,207
Azores	2	1,558			2	1,558
Dutch Guiana	6	5,151	50	2,943	56	8,094
French Guiana			11	1,226	11	1,226
Bermuda			1	147	1	147
Brazil			2	667	2	667
West coast of Africa			1	198	1	198
Dutch West Indies	1	897			1	897
Total	117	118,969	338	61,857	455	180,826
Norwegian.						
United Kingdom			34	14,434	34	14,434
Brazil			2	658	2	658
Argentine Republic			1	498	1	498
Belgium			1	294	1	294
Total			38	15,884	38	15,884
American.						
United States			62	28,532	62	28,532
British West Indies			5	1,860	5	1,860
French West Indies			2	598	2	598
British North America			2	612	2	612
Teneriffe			1	245	1	245
Rio de Janeiro			1	612	1	612
Dutch Guiana			2	719	2	719
Total			75	33,178	75	33,178
Dutch.						
British West Indies	17	18,646	14	892	31	19,538
Dutch Guiana	15	16,322	3	166	18	16,488
French Guiana			1	60	1	60
Holland			1	356	1	356
Total	32	34,968	19	1,474	51	36,442

Table showing the number and tonnage of vessels entered, etc.—Continued.

From—	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
French.						
British West Indies	11	7,451	2	1,429	13	8,880
French Guiana	20	5,296			20	5,296
Dutch Guiana	1	202			1	202
Bolivar (Venezuela)	10	2,020			10	2,020
French West Indies			2	1,520	2	1,520
United Kingdom			3	1,296	3	1,296
Total	42	14,969	7	4,245	49	19,214
Danish.						
Denmark			2	460	2	460
United Kingdom			2	510	2	510
Total			4	970	4	970
Austrian.						
United Kingdom			1	496	1	496
German.						
United Kingdom			1	317	1	317
Brazil			1	556	1	556
Total			2	873	2	873
Swedish.						
United Kingdom			2	1,012	2	1,012
France			1	335	1	335
Total			3	1,347	3	1,347
Portuguese.						
Portugal			3	387	3	387
Madeira			5	1,504	5	1,504
Teneriffe			5	901	5	901
Total			13	2,792	13	2,792

Table showing the number and tonnage of vessels cleared from the port of Demerara during the year 1891.

To—	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
British.						
United Kingdom	19	16,219	14	9,174	33	25,393
United States	17	16,537	54	26,384	71	42,921
British West Indies	60	67,607	124	11,783	184	79,390
British East India			4	6,048	4	6,048
Canada			20	2,387	20	2,387
French West Indies			55	4,492	55	4,492
Madeira	2	2,050			2	2,050
Azores	4	3,358			4	3,358
Dutch Guiana	2	1,790	59	2,004	61	3,794
French Guiana			12	1,344	12	1,344
Dutch West Indies			3	465	3	465
Venezuela	1	1,486			1	1,486
Spanish West Indies	7	7,266	3	874	10	8,140
Haiti			2	367	2	367
Colombia			2	310	2	310
Danish West Indies			1	190	1	190
Mexico			1	296	1	296
Total	112	116,313	354	66,118	466	182,431

Table showing the number and tonnage of vessels cleared, etc.—Continued.

To—	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
Norwegian.						
United Kingdom			18	6,797	18	6,797
Brazil			1	269	1	269
Belgium			1	449	1	449
British West Indies			11	4,320	11	4,320
United States			6	3,299	6	3,299
Haiti			1	336	1	336
Mexico			1	244	1	244
Danish West Indies			1	427	1	427
Total			40	16,141	40	16,141
American.						
United States			53	23,827	53	23,827
British West Indies			14	7,655	14	7,655
Mexico			1	336	1	336
Danish West Indies			2	756	2	756
Venezuela			1	170	1	170
Total			71	32,744	71	32,744
Dutch.						
British West Indies	15	16,304	11	620	26	16,924
Dutch Guiana	17	18,629	3	166	20	18,795
French Guiana			2	120	2	120
French West Indies			3	180	3	180
Total	32	34,933	19	1,086	51	36,019
French.						
British West Indies	9	6,059	2	1,429	11	7,488
French Guiana	31	9,288			31	9,288
Bolivar (Venezuela)	10	2,020			10	2,020
French West Indies			1	388	1	388
United States			1	641	1	641
Haiti			1	484	1	484
United Kingdom			1	358	1	358
Total	50	17,367	6	3,300	56	20,667
Danish.						
British West Indies			3	749	3	749
Austrian.						
United States			1	496	1	496
German.						
British West Indies			2	1,500	2	1,500
Swedish.						
United Kingdom			1	289	1	289
British West Indies			2	829	2	829
Total			3	1,118	3	1,118
Portuguese.						
Portugal			5	1,049	5	1,049
Madeira			8	1,946	8	1,946
Total			13	2,995	13	2,995

Table showing the arrivals and departures of American vessels at Demerara during the year ended December 31, 1891.

Name of vessel.	Tons.	Entered.		Cargo.		Cleared.	
		Date.	From—	Inward.	Outward.	Date.	To—
Sunlight	355	Jan. 2	Guadeloupe	Ballast	Sugar	Jan. 8	New York.
Nelson Bartlett	637	Jan. 8	Boston	Ice and iced provisions	do.	Jan. 30	Delaware Breakwater.
Albert Shultz	473	do.	New York	Breadstuffs	do.	Jan. 19	New York.
Scud	329	Jan. 13	Barbados	Flour (barrels)	do.	Jan. 23	Do.
Minnie Abbe	327	Jan. 19	Fernandina	Lumber	Ballast	Feb. 7	St. Thomas.
Skobeleff	590	Jan. 20	Barbados	Oak staves	Sugar	Feb. 4	Delaware Breakwater.
Sparkling Water	303	Jan. 21	St. John, N. B	Lumber	do.	Feb. 12	Do.
Haluna	330	Jan. 24	Fernandina	do.	Ballast	Feb. 6	Fernandina, via St. Thomas and Barbados.
Jefferson	309	Jan. 26	St. John, N. B.	do.	do.	do.	Barbados.
Rising Sun	332	Jan. 30	New York	Breadstuffs	Sugar	Feb. 3	New York.
Edward S. Stearns	321	Feb. 2	Jacksonville, Fla	Lumber	do.	Mar. 3	Delaware Breakwater.
Ethel V. Boynton	703	Feb. 11	New York	Breadstuffs	Ballast	Feb. 27	Trinidad.
Sarah & Ellen	553	do.	Rockport	Ice and iced provisions	Sugar	Mar. 14	Delaware Breakwater.
Bertha Warner	429	Feb. 16	New York	Breadstuffs	Ballast	Feb. 23	St. Thomas.
Morning Light	257	do.	Barbados	Ballast	Sugar	Feb. 18	New York.
Sunlight	355	Feb. 21	New York	Breadstuffs	do.	Feb. 28	Do.
Benj. C. Frith	844	Mar. 9	Boston	Ice and iced provisions	Ballast	Mar. 25	Trinidad.
Clytis	416	Mar. 11	Baltimore	Breadstuffs	Sugar	Mar. 24	Delaware Breakwater.
Celia F	392	Mar. 17	Fernandina	Lumber	do.	Apr. 11	Philadelphia.
Shetland	612	Mar. 23	New York	Breadstuffs	do.	Apr. 14	Do.
H. S. Langfair	383	Apr. 7	Jacksonville	Lumber	do.	Apr. 28	Baltimore.
Morning Light	257	Apr. 11	New York	Breadstuffs	do.	Apr. 15	New York.
Sunlight	355	Apr. 20	do.	do.	do.	Apr. 24	Do.
Albert L. Butler	327	do.	do.	do.	do.	May 4	Philadelphia.
Seth M. Todd	185	Apr. 21	Wilmington, N. C.	Lumber	do.	do.	Delaware Breakwater.
Addie Morrill	631	Apr. 30	Rockport	Ice and iced provisions	do.	May 19	Philadelphia.
Nantasket	496	May 1	New York	Breadstuffs	do.	May 22	Delaware Breakwater.
Elbridge Souther	658	May 23	Boston	Ice and iced provisions	Ballast	June 5	Turks Island.
Morning Light	257	May 29	New York	Breadstuffs	Sugar	June 6	New York.
Ann E. Valentine	245	June 9	Teneriffe	Vegetables and wine	Ballast	June 18	Barbados.
Briscilla	612	June 18	Rio de Janiero	Ballast	Sugar	June 29	Philadelphia.

Sunlight	355	June 19	New York	Breadstuffs	do	June 24	New York.
J. F Merry	448	June 24	do	do	do	July 11	Philadelphia.
Teneriffe	518	do	do	do	Ballast	July 10	Turks Island.
Benj. C. Frith	844	July 6	Boston	Ice and iced provisions	do	July 16	Trinidad.
City of Baltimore	339	July 16	Georgetown, S. C	Lumber	do	Aug. 10	Do.
Elvina	336	July 18	New York	Breadstuffs	do	July 24	Mexico.
S. R. Bearse	577	July 20	Rockport	Ice and iced provisions	do	July 31	Turks Island.
Morning Light	257	do	New York	Breadstuffs	Sugar	July 24	New York.
Clotilde	445	July 23	do	do	do	July 31	Delaware Breakwater.
Sunlight	355	Aug. 11	do	do	do	Aug. 15	New York.
E. O. Clark	656	Aug. 18	Rockport	Ice and iced provisions	do	Sept. 8	Baltimore.
Martha T. Thomas	750	Aug. 19	Boston	do	Ballast	Aug. 31	Trinidad.
Hancock	392	do	New York	Breadstuffs	Sugar	Sept. 1	Delaware Breakwater.
Eugene Hale	481	Sept. 1	Paramaribo, D. G	Ballast	do	Sept. 9	Do.
Frank M. Howes	170	Sept. 4	Baltimore	Breadstuffs	Ballast	Sept. 10	Baltimore, via Orchilla.
Edward Johnson	380	Sept. 7	New York	do	Sugar	Sept. 16	Delaware Breakwater.
Starlight	243	Sept. 19	do	do	do	Sept. 23	New York, via Porto Rico.
Elbridge Souther	658	Oct. 1	Rockport	Ice and iced provisions	Ballast	Oct. 14	Turks Island.
Davis Eckhoff	530	Oct. 3	New York	Breadstuffs	Sugar	Oct. 20	Delaware Breakwater.
Nelson Bartlett	637	Oct. 6	Boston	Ice and iced provisions	Ballast	Oct. 15	Turks Island.
John F. Kranz	473	do	New York	Breadstuffs	Sugar	Nov. 5	Philadelphia.
St. Croix	222	Oct. 10	do	do	do	Oct. 21	Do.
Arcot	381	Oct. 12	do	do	do	Oct. 23	Delaware Breakwater.
Albert Shultz	473	do	do	do	do	Oct. 24	Do.
Henry Clausen, jr	522	Oct. 22	do	do	do	Nov. 6	Philadelphia.
Scud	329	Oct. 28	Barbados	Ballast	do	Nov. 2	New York.
Beatrice Havener	525	Nov. 4	New York	Breadstuffs	do	Nov. 19	Philadelphia.
Benj. C. Frith	844	Nov. 7	Boston	Ice and iced provisions	do	Nov. 25	New York.
Odorilla	397	Nov. 11	New York	Breadstuffs	do	Nov. 21	Boston.
Stephen Bishop	281	Nov. 12	Norfolk, Va	Lumber	Ballast	Nov. 27	Richmond, Va.
Morning Light	257	Nov. 18	New York	Breadstuffs	Sugar	Nov. 24	New York.
Olive Pecker	832	Nov. 20	Rockport	Ice and iced provisions	do	Dec. 11	Philadelphia.
Starlight	243	Nov. 30	Martinique	Ballast	do	Dec. 3	New York.
R. F. Pettigrew	885	Dec. 2	Boston	Ice and iced provisions	do	Dec. 28	Delaware Breakwater.
Susie P. Oliver	259	Dec. 4	Jacksonville	Lumber	do	Dec. 22	Do.
Shawmut	445	Dec. 5	New York	Breadstuffs	do	Dec. 24	Do.
Sunlight	355	Dec. 9	Barbados	Ballast	do	Dec. 16	New York.
Norambega	295	do	New York	Breadstuffs	do	Dec. 31	Delaware Breakwater.

Table showing the arrivals and departures of American vessels at Demerara during the year ended December 31, 1891—Continued.

Name of vessel.	Tons.	Entered.		Cargo.		Cleared.	
		Date.	From—	Inward.	Outward.	Date.	To—
						1892.	
Ella M. Storer	427	Dec. 11	New York	Breadstuffs	Sugar	Jan. 4	Delaware Breakwater.
Alicia B. Crosby	1,065	Dec. 21	Boston	Ice and iced provisions.	Ballast	Jan. 14	Cuba.
Major Pickards	935	Dec. 23	Rockport	do	Sugar	Jan. 26	Delaware Breakwater.
Sarah H. Stetson	298	Dec. 31	Paramaribo, D. G	Ballast	do	Jan. 6	Do.
Edward Stewart	378	do	New York	Breadstuffs	Ballast	Jan. 15	Brunswick, Ga.
Albert Shultz	473	do	do	do	Sugar	Jan. 5	New York.
Total	33,178						

CONCLUSION.

It is proper to say that much hereof has been gleaned from conversations with gentlemen of the colony of various shades of opinion. In many cases I have endeavored to use their exact words touching matters of the colony. Especially is this true of the portion thereof referring to the "colored man." Indeed, I have endeavored to use the opinions of others rather than my own, unless where they appeared too prejudiced. While nearly a year's residence in the colony enables me to speak somewhat intelligently upon the subject, I deemed it more valuable to embody the views of colonists of many years' standing, thoroughly conversant with the subject, and, like myself, thoroughly unprejudiced. From personal observation I can truly say that the great majority of the colored race in this colony is different from the colored race in the United States, and not at all comparable to the latter. I have met colored men, however, whose superiors in intelligence and ability it would be difficult to find, and whose manners a Chesterfield could not excel; but this class, unfortunately, does not predominate. Most of the lawyers and doctors here are colored men, and certainly they will compare favorably with many and excel some of their brethren of the white race in the same vocations here or elsewhere.

The present mayor of Georgetown is a colored man, as was also his immediate predecessor, both lawyers and very able men. Besides the lawyers and doctors, there are two or three remarkably able newspapers conducted by colored men in this city, papers which, in the judgment of many, are as ably conducted as the leading paper of the city of Georgetown.

PHILIP CARROLL,
Consul.

UNITED STATES CONSULATE,
Demerara, May 4, 1892.

THE FUTURE OF THE TIN-PLATE INDUSTRY.

REPORT BY CONSUL HOWARD, OF CARDIFF.

I have the honor to transmit herewith a clipping from the South Wales Daily News, containing an interview with Mr. J. H. Rogers, the managing partner of Messrs. E. Morewood & Co., who have recently established a tin-plate manufactory in the United States. As Mr. Rogers is chairman of the Tin-Plate Makers' Association here, and has recently returned from his mission to the United States in connection with the establishment of his firm's tin-plate enterprise there, I think his views upon the future of the tin-plate industry in the two countries may be of general interest.

WALTER E. HOWARD,
Consul.

UNITED STATES CONSULATE,
Cardiff, July 13, 1892.

THE FUTURE OF THE TIN-PLATE TRADE.

INTERVIEW WITH MR. J. H. ROGERS.—AMERICA AND THE WELSH STAPLE.—MR. ROGERS ON LABOR AGITATORS.

[Inclosure in Consul Howard's report.—From the South Wales Daily News, July 13, 1892.]

A couple of months ago we announced that Messrs. E. Morewood & Co., proprietors of the South Wales and Cwmbwrla Tin-Plate Works, and a few other Welsh makers contemplated erecting tinning departments in the United States, with the object, presumably, of realizing the difference between the duty on finished and black plate, which is about 2s. 6d. upon each box. Subsequent inquiries proved that Messrs. Morewood & Co. were about laying the foundations of such an establishment within a few miles of New York, and a few weeks ago Mr. J. H. Rogers, the managing partner, proceeded to the United States in connection with the matter. He returned last week, and, believing that Mr. Rogers (whose views as chairman of the Tin-Plate Makers' Association carry considerable weight) might offer an opinion upon the subject and upon the trade generally, our reporter waited upon him at the offices of the South Wales Works, Llanelly, a day or two since. Reference was first made to the passing of the tin-plate bill (which provides that the duty on tin and terne plates shall, after the 1st of October, be 1 cent per pound, and that the tariff be altogether taken off after October 1, 1894) on Friday last by the House of Representatives; and Mr. Rogers was asked whether he thought it would be accepted by the Senate. The reply was that it was altogether a political move, and that the House of Representatives itself didn't anticipate the Senate would pass it. Even if it did, it was very probable that President Harrison would exercise his veto against it, in support of which it was pointed out that Mr. McKinley was chairman of the convention when President Harrison was nominated for the Presidency, and spoke very strongly in favor of the tariff, at the same time pointing out its advantages. In all probability the bill would be rejected by the Senate if it was placed before it, which was questionable.

"As a result of your recent visit to the United States, can you give some idea of the prospects of the Democratic party in view of the coming presidential election?" our representative inquired of Mr. Rogers.

"Well," was the reply, "it is generally regarded that the fight will be an exceedingly close one. The Republicans say they will certainly return their President, and the Democrats, on the other hand, are equally confident. The general opinion is that the Democrats can not win unless they carry New York State, but the Republicans may possibly win, even if they lose that State. The parties are so closely balanced that it is really impossible to say which will win."

"Supposing Mr. Cleveland were elected, what do you think would be the effect of his policy?"

"I think the result would be that the duties would be gradually lowered, and that wages would consequently fall. The working classes would, of course, not be willing to remain without work, and manufacturers would have to reduce wages to enable them to compete successfully with other countries. Wages in America are at present about double what they are here, but if America adopted free trade they would probably be reduced by one-half, and become equal to the wages paid here. The question of free trade or protection in America is, therefore, of far more importance to the working class of America than it is to any class in this country. In America the working class earn high wages at present, and the cost of living there is so little more than it is here that they have much greater comfort and are able to save more rapidly."

Our reporter here reminded Mr. Rogers of the statements that had often been made during the last twelve months as an argument to prevent the tin-platers of Wales to emigrate to America, that the heat and the cost of living was much greater in the United States than in our own country.

Mr. Rogers replied that as a matter of fact such was not the case. True, house rent was higher there, but the necessities of life to workingmen and their families were very cheap. The best class of clothing was also more expensive, but that for workingmen was not. The weather was exceedingly hot during his visit, and one of the first things Mr. Rogers did was to purchase a cool, thin suit, which cost him 52*s*., which he didn't think he could get as cheap in this country. Then, as to the heat, those who went to America got so accustomed to it that they didn't mind it more than they would here. One day while he was there the temperature was 105° in the shade; the next day it was 103°, while another day it was 96°, so that on the whole it was quite pleasant. Upon being asked whether the belief generally entertained here was correct, viz, that the weather at times became so extremely hot that men engaged in steel, iron, and tin works were obliged to relinquish work for more or less prolonged periods, Mr. Rogers replied that these men worked as steadily there during the hot weather as they did here. Referring to the cost of living, Mr. Rogers instanced the case of a Llanelly tin-plate worker, for whom he had found employment, who told him that not only was he in a position to live comfortably upon the wages he earned about 36*s*. a week, but he was able to send about half of it to his family at home.

Conversation then ensued upon the condition of trade in South Wales, Mr. Rogers declaring that it was really worse now than it was twelve months ago, which was proved by the number of works which were either partially or wholly idle. He could not account for it, and feared that a bad period had set in, while he could see no prospect of a change.

Mr. Rogers was then asked whether he had read the recent utterances of Mr. D. Randell, M. P., who declared that the action of Messrs. Morewood & Co. in erecting works in the United States before waiting to see the results of the November elections was not only "selfish and suicidal," but also "ill-timed, misjudged, and unpatriotic." Mr. Rogers smiled in reply, and added that his attention had been called to the honorable member's speech.

"The unpatriotic people," proceeded Mr. Rogers, "are those who set class against class and labor against capital, and it is those whom the working classes ought to blame for the depression which is settling down upon our manufactures. Fifteen months ago, when interviewed by a reporter, I said as follows:

"'All such methods of propping up wages rates as limiting the make to so many boxes in a given time will have to be thrown to the wind, and all will have to do their best to make the greatest use of the appliances and materials at their disposal. If the men will not make the best and most economical use of their arms we shall be compelled to displace them by machinery, or move our works to other countries, where materials and labor and tariffs will enable us to carry on our business profitably.'

"My warning and advice have not been heeded, and I am not, under those circumstances, to blame that the results which I predicted have been fulfilled."

"Well," interposed the interviewer, "would you mind telling me what induced the firm to erect such works in America?"

"Our action is by no means entirely due to the McKinley bill. I know perfectly well that the day must come when the duty will be reduced in America, and I don't think that the majority of the voters, who are workingmen, are so shortsighted as to think it would be to their benefit that the duties should be at present reduced. To erect works now, trusting to the high duty imposed by the McKinley bill, would be very unwise."

"How can you reconcile this statement with your action?"

"What really carried weight with us in our decision to erect works in America was the doctrines and actions of the leaders of the workingmen. They cry out against capital, denounce it as an evil to the country, and say they must crush it. We capitalists on our part say: 'Very well; if you don't like to have us in the country, and you, who are the majority of the voters, wish to have such laws as will injure and hamper us in the conduct of our manufactures, we will go to other countries where the value of capital is appreciated by all classes, and every inducement held out to us to erect works and to invest our capital.' Many of our politicians coquette with labor and other questions, instead of, as true friends should, pointing out to the working classes the folly of the course they pursue. I don't so much blame the genuine workingman leader, but, owing to want of knowledge and experience, he takes too local and narrow a view of trade questions, and acts and advises as if Great Britain were the whole world. She is only a very small part of the manufacturing world, and has not now the advantages she used to have; rather the contrary."

"Have you commenced erecting your works near New York?"

"Oh, yes; but we do not anticipate starting operations until October."

"Supposing the present tariff is maintained, will the fact of its being so affect South Wales and the Cwmbwrla works?"

"We don't anticipate stopping our works here whatever happens; at any rate, so far as our steel works and mills are concerned. The best evidence of that is that we are putting up in them more modern and perfect machinery. We intend making a hard fight to keep our works here and at Cwmbwrla running. Our American works are what is called in sporting terms a 'hedge,' so that if the actions of the leaders of the working people and the houses of Parliament make it unprofitable for us to carry on our works in this country, we shall still be able to be large manufacturers. If the presidential election had been a month ago, and if Mr. Cleveland had been elected, it would make no difference whatever to what I say."

Referring to the remark made before a public audience that it was "unpatriotic" on the part of the firm to erect works instead of waiting until November, Mr. Rogers observed that the November elections, however they might go, would have no effect upon what they were doing. As he had said before, the McKinley tariff was only a secondary cause for their action. "Capital," he added, "is sensitive and timid, and will always flow to the countries which offer most security and the freest opportunities for untrammeled development, and where capital is most abundant there will be the greatest prosperity, most regular employment, and most happiness."

Proceeding, Mr. Rogers remarked that some of the Democrats said: "We are quite prepared to admit that if the duties are reduced wages will have to be correspondingly reduced, but our aim is that wages shall be so far reduced that our manufacturers can undersell Europe in neutral markets, such as India, Australia, etc.; but we believe that the cost of living and of luxuries should also be so reduced that workmen would be as well off at the lower wages as they are now at the higher wages."

"Are there any other works in course of erection in America now?"

"Yes, there are several. When President Harrison was chosen, Mr. McKinley gave figures showing that there were twenty-five tin-plate works either built or in course of erection, the accuracy of which I can not confirm, as I only visited a few. The manufacture of tin plates is, however, very rapidly taking root in the United States, and some very magnificent plants have been erected. In one works which I visited was the finest plant which I have ever seen. An enormous steel and tin plate concern is being built in Chicago."

"Does this plant dispense with any of the manual labor necessary here?"

The interview closed with the remark that it did, and to a very great extent.

COTTON IN EGYPT.*

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.†

It appears that cotton was known to the ancient Egyptians. In ancient times it grew here in a wild state. Herodotus mentions a plant which bore flowers of a pinkish color and a fibrous fruit. It is thought that the seed came from the far East, as the plants gave a woolly product of short and weak staple. It was only in the early part of the present century that the cultivation of cotton began to extend and exotic seed to be imported. Mako and Jumel were the names given to the new product, which was of a white color and of long staple. Mako was the name of a large landed proprietor who especially lent himself to the culture of the new cotton. Jumel was the name of a French agriculturist who first imported seed from America. In France Egyptian cotton is still called Jumel.

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*Samples of Egyptian cotton which accompanied this report have been transmitted to the Department of Agriculture.

†I have obtained most of the information contained in this report from the General Produce Association of Alexandria, the president of which very kindly responded to my inquiries.—L. B. G.

As an article of export cotton dates from the year 1821, but during thirty-five years the quantity varied only from 150,000 to 500,000 cantars (cwts. of 98 pounds). A great stimulus was given to this culture by the Viceroy Mehemet Ali. It is said that he planted all the seed he could get on his own land with successful results, and, being stimulated by the high price obtained for the new fiber in the European markets, he encouraged its cultivation throughout Lower Egypt, the soil and climate of which were found to be admirably adapted to its growth.

It was in 1837–'38 that this culture really began to take serious proportions. Abbas Pasha I still further encouraged it. In 1860 the export duty was reduced from 10 per cent to 1 per cent ad valorem, which, of course, helped to stimulate the culture; but the great impetus was given by the American civil war, the high prices at that period causing the cultivation to be pushed to the utmost limits.

Up to our days the Mako-Jumel has experienced many changes and evolutions, which are attributed to the nature of the soil. The color gradually became a yellowish brown, and took the name of Ashmouni, from the village of Ashmoun, where this change was first noted.

VARIETIES.

The present varieties of Egyptian cotton as known to commerce are the following: Ashmouni, Mit-Afifi, Abiad, Bamieh, and Gallini.

Ashmouni.—For many years this quality formed the bulk of the Egyptian crop, but it is now almost entirely superseded by Mit-Afifi. In color it was of a lightish brown, lighter than the Mit-Afifi, and with a staple rather over 1 inch in length. It is still cultivated in some parts of Lower Egypt, notably in the neighborhood of Mehala-el-Kebir, but the acreage of this quality is decreasing every year. In Upper Egypt, however, it is more extensively cultivated, as the nature of the soil there is less favorable to the Mit-Afifi cotton.

Mit-Afifi.—The seed of this cotton was discovered by a Greek merchant living in the village of Mit-Afifi, where he first planted it and whence it derives its name. The seed has a bluish-green tuft at the extremity, which first attracted his attention. On planting this seed he found that it possessed many advantages over the Ashmouni. It matured earlier and was therefore much less susceptible to damage from the salt fogs, which are very often prevalent in September. Its chief superiority, however, consisted in the greater proportion of lint yielded to the seed. At first the cantar of 315 rotols (pounds) yielded about 112 rotols of lint, and sometimes even more; but now it has deteriorated and rarely gives so much, generally averaging 106 to 108 rotols. Ashmouni rarely attains 98 rotols. The finder kept the secret for some years, but it ultimately became known. The Mit-Afifi is of a darker and richer brown than the Ashmouni. It is of excessive strength, but, except in some districts, the staple is not longer than that of Ashmouni. The districts where it has longer staple are about Cafr Zayat, Chibin-el-Koom, and notably Birket-es-Sab.

Abiad.—Abiad, as its name indicates, is white cotton, and is chiefly grown at Zifta, Mit-Gamr, and, to a smaller extent, at Birket-es-Sab. In other districts it is only grown sporadically, and even in the districts above mentioned it is rapidly giving way to Mit-Afifi. The staple is much longer than that of American cotton, the bulk reaching about 1 inch in length, while some fine lots are to be found having a length of 1¼ and even 1½ inches. The yield is 105 to 112 rotols.

Bamieh.—This quality is yearly degenerating. The form of the tree is quite different from the other varieties of cotton, being tall and not bushy. It is supposed to have been produced by accidental hybridization of the Ashmouni cotton tree and the Bamieh plant, as it resembles the latter in several points. Its chief charactistics are great length, fineness, and silkiness of staple and a rather lighter color than Ashmouni, but generally a greater weakness of staple. The tree, however, is more delicate than the other varieties, and is therefore very susceptible to September fogs. It yields about 100 to 105 rotols of lint per cantar of 315 rotols. The chief districts now producing the best quality of this variety are: First, Mansoorah; second, Semenood; and then Mehala-el-Kebir.

Gallini.—This variety has almost entirely disappeared from cultivation, as the quality had deteriorated to such an extent that it became most difficult to sell. Only one small lot of 122 cantars appeared in the Alexandria market this year, and, I am informed, is still unsold. It has been said that this variety was originally produced from imported Sea Island seed, but I am informed by competent authority that this is an error. It was first found accidentally at a place called Galleen, in the province of Garbieh, about the year 1863 on land belonging to Haidar Pasha, and from there it spread all over that province. Attempts at cultivation in other districts were not successful, which proved that its proper development depended entirely on the quality of the soil. Though very fine, silky, and strong, it differed greatly from Sea Island, being of a brown color instead of white. Many attempts have been made to introduce the culture of Sea Island cotton in Egypt by importing seed from the United States, but all experiments failed. Although the cotton produced was very long and fine, it was so weak in staple that all spinners condemned it.

Other varieties.—New varieties are continually springing up. Just now a variety called Hamouli is coming into the market. This is strong and of a good mellow brown color, but not so long in staple as Mit-Afifi. Here again the chief incentive to its culture is the good yield of lint. So far, however, the amount cultivated is extremely small. Another variety called Zeplyri is also spoken of, but nothing is yet known of this, as only a few cantars were known to exist last year. There is also another variety, of which very little is known yet, because the possessors of the seed keep the matter secret. This resembles Sea Island much more than Gallini, having all the requisite characteristics and the same white color.

PLANTING AND CULTIVATION.

Planting takes place in March and April. In this connection I can not do better than quote McCoan. He says, in "Egypt as It Is" (p. 189):

> The cultivation of the plant, of whichever variety, differs slightly according as the ground sown is *balieh*, *i. e.*, watered solely by annual inundation, or *miscoweh*, which is not thus fully irrigated, but requires to be artificially watered several times before and after seed-sowing. In Lower Egypt, where the land is fatter and stronger than above Cairo, one plowing generally suffices before seed time, but in the upper valley two at least are necessary; deep if the soil be light, but shallower where it is heavy. Small patches of ground are hoed where the cultivator can not afford the cattle power required for the plow. The ground being next leveled with the hoe or a rude kind of harrow, furrows are made about 2 feet apart, in which, at intervals of some 3 feet, holes are drilled 3 or 4 inches deep. Into each of these the sower drops half a dozen seeds, which he covers in with earth and waters (or not), and the operation is complete. The *balieh* lands are thus sown in March and the *miscoweh* in April. Near the towns vegetables are generally planted between the furrows, to make the most of the ground; where this is not done the plants are thinned and earthed up by plowing between the ridges.

The cotton fields are artificially watered about eight times during cultivation, generally by bringing the Nile water between the ridges on which the plants are growing, thus saturating the soil completely. The general ripening of the pods begins in September (but the Mit-Afifi ripens about a month earlier), and the cotton is ready for the first picking in October. A second picking takes place in November or at the beginning of December and a third in January and February.

The wages of pickers are: For men, from 20 to 30 cents per diem; for children, about 15 cents per diem.

After the last picking the cotton trees are generally pulled up and used for fuel. In some few instances they are only cut down close to the ground, and a second crop is produced from the same plants. This second crop, however, is not as good as the first, and it is becoming a universal custom to use fresh seed for every crop. In the interval between the last picking and the new sowing the cotton fields are sown with "berseem," or Egyptian clover, which grows quickly and can be removed in time for the next cotton planting. Continuous growing of cotton on the same lands impoverishes the soil, and the quality of the product deteriorates year by year. For this reason it is customary to follow a kind of rotation system. For example, cotton is rarely grown on the same lands for more than two years in succession, and in most cases for not more than one year. The second or third year, as the case may be, these lands are devoted to cereals or some crop which does not injure the soil and which aids it to recover its good qualities. By some growers rice is considered the best crop to grow in the interval. During its cultivation the soil regains its strength, on account of its continual submersion.

The best producing lands are those which are left two years under light crops and planted with cotton only every third year.

AREA.

The total area planted with cotton during the season 1890–'91 was 855,479 acres, and during the season 1891–'92 it was 831,241 acres. This area will probably be increased in proportion as more lands are brought under irrigation. As the means of irrigation are being improved year by year, it is probable that in time there will be a considerable increase in the production of cotton, as it is one of the best-paying crops. It is thought that next season's crop will be still larger than that of last year, although it is impossible to give any idea of the exact increase of area.

PRICES.

During the last cotton season prices have been very low. It will be observed by a glance at the following table that only on four previous occasions have the prices of Egyptian cotton been so depressed, viz, in the years 1843, 1845, 1848, and 1851.

Table showing the exportation and average price of cotton from 1821 to 1892.

Year	Average price per cantar.*	Exports.
		Cantars.†
1821	$16.00	908
1822	15.50	35,108
1823	15.50	159,426
1824	17.00	228,078
1825	13.00	218,312
1826	13.00	216,181
1827	13.00	159,642
1828	13.00	59,255
1829	12.00	104,920
1830	12.00	213,585
1831	10.50	186,675
1832	15.00	136,127
1833	25.00	56,067
1834	30.75	143,892
1835	25.25	213,604
1836	18.50	243,230
1837	13.00	315,470
1838	15.00	238,833
1839	18.25	134,097
1840	13.00	159,301
1841	13.25	193,507
1842	10.00	211,030
1843	7.75	261,064

* Reduced from piasters tarif; 1 piaster tarif = 5 cents.

† 1 cantar = 98 pounds.

Table showing the exportation and average price of cotton from 1821 to 1892—Continued.

Year.	Average price per cantar.	Exports.
		Cantars.
1844	$18.00	153,363
1845	6.00	344,955
1846	10.25	202,040
1847	10.00	257,492
1848	7.25	119,965
1849	10.00	257,510
1850	11.75	364,816
1851	8.75	384,439
1852	10.25	670,129
1853	10.00	477,390
1854	9.00	477,905
1855	9.25	520,886
1856	10.75	539,885
1857	16.25	490,960
1858	12.75	519,537
1859	12.00	502,645
1860	12.25	501,415
1861	14.00	596,200
1862	23.00	721,052
1863	36.25	1,181,888
1864	45.00	1,718,791
1865	31.75	2,001,169
1866	35.25	1,288,762
1867	22.50	1,260,946
1868	19.00	1,253,455
1869	23.00	1,289,714
1870	19.50	1,351,797
1871	15.75	1,966,215
1872	21.00	2,108,500
1873	18.55	2,013,433
1874	16.15	2,575,648
1875	14.95	2,206,443
1876	18.85	3,007,719
1877	13.70	2,439,157
1878	12.25	2,583,610
1879	13.60	1,680,595
1880	14.05	3,123,515
1881	14.35	2,792,184
1882	13.75	2,846,237
1883	15.00	2,293,537
1884	13.50	2,686,382
1885	12.55	2,591,486
1886	11.00	2,904,842
1887	12.00	3,025,965
1888	13.75	3,593,327
1889	16.00	2,648,640
1890	13.40	3,496,108
1891	11.50	4,159,405
1892	8.75	4,750,000

I am informed by the Alexandria General Produce Association that this fall in prices is entirely attributable to the enormous crop in America. I must add, however, that the last Egyptian crop was the largest ever produced, reaching 4,750,000 cantars. Therefore, the low prices can be attributed to the general overproduction of the world.

The cost of production on large farms in Egypt is about $9.74 to $12.17 per acre, exclusive of the land tax, which varies from $1 to $7.41 per acre. The small Arab cultivator, who works with his family on his 3 or 4 feddans, can produce cotton much cheaper. The average production of lint per acre is about 340 pounds, but good lands will yield as much as 700 pounds.

Owing to the absence of any regular statistics it is difficult to say exactly what is the cost of land in Egypt. There is no sort of relation between the value of land and its taxation. I am informed that the highest rate common for cotton lands in Lower Egypt is $7.50 to $8 per acre. With that tax good lands sell for $100, $150, and, in rare cases, even for $200, but on many inferior lands this tax is so crushing that they are almost unsalable.

GINNING, PRESSING, ETC.

The cotton gins used in Egypt are Platt's patent roller gins. The total number of ginning mills throughout Upper and Lower Egypt is about one hundred. They are distributed in all the chief cotton centers. Large towns like Mansoorah, Zagazig, Cafr Zayat, Tantah, and Mehala-el-Kebir have from ten to twenty mills each. There are hydraulic presses attached to nearly all the mills, so that the cotton comes from the mills to Alexandria in hydraulic-pressed bales. Only about four of the interior mills have steam presses. With the exception of the bales sent from these four mills all the cotton is steam pressed in Alexandria before exportation. From two or three places cotton is still sent to Alexandria in bags of about 2½ cantars each, but the bale system is increasing every year.

During the busiest season, say during October, November, December, and January, most of the larger mills work night and day. In this case there are two relays of employés who work twelve hours each, turn and turn about. When business slackens the working hours are from fifteen to sixteen per day, beginning at 6 a. m. and ending at 9 p. m. But in these cases only one set of hands is employed, whose daily wages are reckoned at the rate of one and one-third days to the day of fifteen to sixteen hours. Wages vary a good deal, according to the district, namely, from 10 to 25 cents per diem for ordinary hands. As the season comes gradually to a close the mills work very irregularly.

GENERAL REMARKS.

The large cotton merchants are nearly all resident in Alexandria. They send their agents among the villages to purchase the cotton from the various growers. It is then sent to the nearest mills, where it is ginned and pressed in hydraulic bales, after which it is transported by rail or boat to Alexandria. Here it is pressed in steam presses into bales weighing from 750 to 780 pounds, and measuring about 20 cubic feet. It is then ready for exportation.

It will be noticed that America is not mentioned among the other countries in the table of exportation. This is because almost all the cotton exported from Egypt to America is shipped via England, especially Liverpool, where it is transshipped. The figures in the table of exportation to the United States are taken from the invoice books of the consulate-general at Cairo and the consular agency at Alexandria, where all invoices of merchandise shipped from Egypt to the United States are certified. They may therefore be considered accurate. There are doubtless some purchases of Egyptian cotton made in England for the American market, but such shipments would figure in the exports from England.

The cotton shipped to the United States is used for mixing and for making thread.

LOCAL CONSUMPTION.

The only consumption of cotton in Egypt is for stuffing pillows and mattresses. This need not be taken into account for statistical purposes, as it is chiefly cotton waste.

EXPORTATION.

The following table shows the exportations to various countries during the years 1884 to 1889:

Table showing the quantity and value of cotton exported from Egypt to various countries from 1884 to 1889.

Countries.	1884.		1885.		1886.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cantars.		*Cantars.*		*Cantars.*	
England	2,029,007	$27,679,995	1,847,581	$22,150,830	1,869,292	$22,123,890
Russia	242,797	3,248,540	518,245	6,279,650	450,171	5,198,140
France and Algeria	293,384	3,600,135	250,657	3,052,135	266,150	3,130,655
Austria-Hungary	222,808	2,987,295	247,411	3,049,965	245,245	2,796,895
Italy	201,723	2,692,660	206,876	2,690,325	163,403	1,882,505
Spain	63,055	840,945	88,106	1,089,285	29,988	359,845
Other	20,796	139,175	30,145	219,815	16,551	112,130
Total	3,073,570	41,188,745	3,188,821	38,531,995	3,040,803	35,604,060

Countries.	1887.		1888.		1889.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Cantars.		*Cantars.*		*Cantars.*	
England	1,956,306	$24,162,815	1,619,444	$20,665,000	2,000,430	$26,763,545
Russia	371,723	4,614,870	375,983	4,744,095	314,353	4,207,845
France and Algeria	234,668	2,888,015	208,314	2,636,650	248,795	3,312,220
Austria-Hungary	232,862	2,899,625	253,064	3,173,990	355,446	4,751,080
Italy	216,130	2,555,635	181,495	2,315,415	231,328	3,114,090
Spain	20,792	262,925	28,043	367,990	20,139	266,415
Other	34,532	328,950	25,492	213,415	35,711	323,385
Total	3,067,013	37,712,835	2,691,835	34,116,555	3,206,202	42,738,580

The following table shows the value of exportations of cotton from Egypt to the United States during the nine years ended 1891:

Year.	Value.	Year.	Value.
1883	$3,781	1889	$580,631
1884	25,604	1890	728,052
1885	47,719	1891	2,417,168
1886	9,816	Total	4,117,079
1887	112,577		
1888	191,731		

There were no exports of cotton to the United States during the years 1881 and 1882.

For the quarter ended March 31, 1892, the exports to the United States amounted to $523,725.43.

Table showing the quantity and value of cotton seed exported from Egypt to various countries from 1884 to 1889.

Countries.	1884.		1885.		1886.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.		*Bushels.*		*Bushels.*	
England	9,481,950	$6,352,730	10,407,518	$6,575,085	11,641,333	$5,928,175
France and Algeria	1,430,487	967,535	926,222	571,200	918,946	480,465
Other	319	240	77,374	49,670	1,689	1,075
Total	10,913,116	7,320,505	11,411,114	7,195,955	12,561,968	6,409,715

Countries.	1887.		1888.		1889.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Bushels.		*Bushels.*		*Bushels.*	
England	11,505,786	$5,834,815	10,503,444	$6,008,680	10,825,843	$6,815,980
France and Algeria	1,015,432	513,260	907,769	538,520	708,157	444,455
Other	71,753	37,175	2,503	1,515	14,239	9,025
Total	12,592,971	6,385,250	11,413,716	6,548,715	11,542,239	7,269,460

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES AGENCY AND CONSULATE-GENERAL,
Cairo, May 21, 1892.

THE MAGDALENA RIVER AND VALLEY.

REPORT BY CONSUL NICKEUS, OF BARRANQUILLA.

When returning from the United States in 1891, I noticed 50 miles at sea a swift current of muddy water making its way toward the shores of Central America, bearing upon its bosom immense quantities of weeds, flowers, trees, old logs, and other débris. Upon inquiry I learned that this was the Magdalena River (being very high at this season of the year), one of the great rivers of the world—great for its length, its depth, the volume and swiftness of its current, the width and fertility of its valley, its numerous and flourishing towns, and its commerce. The commerce runs up into many millions, and is carried by river craft of every description, from the ancient dugout to as fine river steamers as ply the Mississippi.

This river, owing to its proximity to the United States and the fact that it runs 1,000 miles through the best portion of the Republic of Colombia, must become of great interest to the American people commercially; and it may be of some interest to those who wish to read an authentic and accurate account (which they will not find in atlases or gazetteers) of a great water way within about 1,200 miles of New Orleans, hence this paper.

THE RIVER.

From Barranquilla, near the sea, the distance by the river to Honda is about 615 miles, and from Honda to Neyva about 225 miles. It is navigable at all seasons of the year for steamers of light draft as far as a point called Yeguas (12 miles below Caracoli, the old port of Honda), and above the latter place from 30 to 35 miles in the direction of Neyva to a point called Ambalema. The high-water season steamboats, drawing from 4 to 6 feet, easily go full loaded to Yeguas, and the small steamers plying above Honda then go readily as far as Girardos, Peñalira, and Purificacion, the latter being something like 144 miles above Honda; and sometimes vessels have even gone to Neyva.

Immediately in front of the city of Honda and lying between Caracoli and La Noria (the upper port of Honda), there are some very dangerous rapids or falls, called "el salto de Honda," and over which no steamer can go up stream without using stout hauling lines to aid her machinery and exercising at the same time a great deal of care and precaution in this delicate and really dangerous operation.

Steamers that navigate the river above Honda are steamed and hauled over the "salto," as explained above, and then remain doing service in the upper river until, for repairs or some other necessary cause, they are compelled to take the risk of passing the falls downstream on their return to Barranquilla for their needful docking, overhauling, etc., for which there are no facilities at or near Honda.

It is true that, a few years ago, one or two steamers did go in times of very high water as far as Neyva; but the navigation above Purificacion, due to the exceedingly bad and dry condition of the river, is nowadays confined solely to large and small canoes for upstream, and mostly rafts for downstream service.

The source of the Magdalena is the Laguna del Buey, on the Paramo de las Papas, at the southern extremity of the eastern cordilleras and distant from Neyva about 240 miles, thus making the river's entire length 1,080 miles from its source in the Andes to Barranquilla. The area drained by the Magdalena is estimated at 110,000 square miles. In the lower part of the river it is from three-fourths of a mile to a mile and a quarter in width; but from about half the way to Yeguas it becomes gradually less and less wide, until at Caracoli and Yeguas it is only, one would say, from 200 to 350 yards from bank to bank. The depth immediately in front of Barranquilla is considerable, being from 8 to 14 fathoms; but a few leagues further up shoal places are now and again met with, and when above the mouth of the Sogamoro, some 400 miles above Barranquilla, and during very low water the steamboats have sometimes to pass over places here and there having only 3½ feet of water; hence the boats are not loaded to draw at such times more than from 30 to 36 inches of water.

THE UPPER MAGDALENA.

The upper Magdalena is that part of the river comprised between Neyva and Honda, or at best that is what is generally understood by the term. In this part of the river there are many passes that are difficult and dangerous, owing to the many narrow and winding or intricate channels and the rocks in and about them, and in times of very low river there is so little water that above Ambalema the steamers have simply to tie up. The boats go nowadays as far as Girardos only, as a rule, though, when there is occasion for it, they easily go as far as Purificacion, about 36 miles further upstream. There are many *chorros*, or rapids, over which the steamers go in time of good water on their way to Girardos, and all of them are more or less dangerous to steamboat navigation. They are all above Ambalema and are called Colombaima, Jaiamillo, Bizeochuelos, Gallinazos, and Monas. Near Girardos, in sight of the place, is a narrow pass, the Angostura, called "Santa Lucia." From Honda to Girardos is 108 miles.

From all these places come coffee and hides; from Ambalema comes also fine tobacco, ranking in the markets next to that of Cuba.

Ambalema has about 3,000 inhabitants, Girardos about 4,000, and Purificacion about 5,000.

Above Neyva only canoes and rafts navigate the river, and even these for 30 to 40 miles only.

FIRST NAVIGATION OF THE RIVER.

The first navigation of the river by steamboats began under the direction of John B. Elbers, a German, in the year 1824. He obtained from the

Government of the country a concession or monopoly for its navigation by steam vessels; but, after laying out a good deal of money and bringing vessels from Europe for the trade, his contract was broken and rescinded by President Bolivar, the great liberator of South America. By this act the man was ruined and left penniless. Had he been permitted to go on with his enterprise Colombia would be far ahead of what it is to-day. Various companies since that date have been put on foot for this same purpose; some, however, had to give up for want of means, and others sold their vessels to new companies and retired from the business. So it has gone on for many years, new companies forming now and then, and always improving steadily and surely in the class of vessels introduced for the river service and in the manner in which this necessary service is performed.

To-day the Magdalena is navigated by something like twenty-five steam vessels, almost all of them of the most recent and improved models and machinery, and built, for the most part, of galvanized steel either in the United States, England, or Germany, all these countries being represented on the river by vessels which they have built and sent out here in pieces and had put together in Barranquilla or Cartagena. One of these steamers leaves Barranquilla nearly every day for Honda and other points on the river.

The Magdalena River has its banks studded with all kinds and sizes of timber. The banks are constantly caving in and giving way, thus allowing many of the trees to fall into the water and form shoals and, in many cases, islands. Moreover, many of them remain sunken out of sight in mid-channel, and thus make ugly and dangerous snags, which delay and trouble the boats and sometimes cause their utter loss.

Since the beginning of the navigation of the river by steam there have been lost by snagging, running upon rocks, explosions of boilers, etc., more than thirty steamboats. For several years, however, the General Government has had a steam snag boat working on the river, and another, though smaller, steamer has lately been built and is now ready for service as a towboat for lighters and for other purposes (used in the cleaning of the river), so that now there is much hope for the improvement of the river.

The steamboats use only wood as fuel; hence there are many wood yards along the route that, as a rule, are cared for and attended to by the poor people on the banks. Coal is not used, owing, no doubt, to its high price, the duty per ton being about $12. No mines are worked in the country, although there are plenty of them.

About a league below Nare there is a narrow pass, very clear and deep, called the Angostura, about half a mile in length, and something like 150 or 200 yards in width. Through this pass rushes all the water of the river, and when it is much swollen the currents are very strong and difficult to navigate.

THE CAUCA.

The Cauca River empties into the Magdalena about 40 miles above Magangue, and is navigable as far as Nechi for steamers of small draft.

This river has its source near that of the Magdalena, and separates from it widely for a long distance, and finally joins it at the point mentioned above, called Boca de Guamal. Here and there on its inland course before getting thus far it is navigable for short distances, it is said, for very small steamers; but, as the river is not clean, having many snags, rocks, falls, etc., this long and beautiful stream is but little used save by canoes and rafts.

PRINCIPAL TRIBUTARIES.

The principal tributaries of the Magdalena are the Furagarugá, the Prado, the Saldaña, the Plata, the Lagunilla, and the Bogotá above Honda, and at and below this point the Guale, the Guarmo, the Negro, the Miel, the Nare, the Carare, the Sogamoro, the Lebrija, the Cesar, and the Cauca. The Nare is navigable for steamboats, when the river is in tolerable condition, as far as Islitas, a port about 3 miles above the *bodegas* of Nare, at the junction of the river of that name and the Magdalena, and which is an important port as the point at which a great deal of valuable merchandise from abroad is disembarked from the steamers into the *bodegas*, there to be afterwards forwarded to Medellin, Rio Negro, and other cities and *bodegas* in the interior of Antioquia. When this river is in its very dry stage steamers can not go as far as Islitas, and are therefore obliged to leave the cargo at Nare. If relieved from the many snags that abound in them, the rivers Cesar, Sogamoro, and Carare could be utilized—and no doubt for quite a distance—by steamers of light draft. Later on it is likely that this will be done, but as it is at present the cargo and passenger traffic of those streams is performed entirely by canoes and big champans. The Lebrija River is navigable by small steamers something like 60 miles from its mouth to a place called Puerto de Santander, and from there toward the interior of the department of Santander cargo and passengers are carried by canoes.

When I speak of canoes, both large and small are meant to be understood. Some of them are covered over with well-arranged roofs made of straw and are entirely waterproof and more or less safe and comfortable for passengers and cargo.

In the upper river the Furagarugá, the Prado, and the Soldaña rivers are quite large streams, and in time of freshets become very much swollen and more or less wide and deep. Perhaps in the future they may come to be navigated by steamboats, though it is not likely.

TOWNS AND CITIES ON THE MAGDALENA.

Going upstream from Barranquilla the towns of importance on the bank of the river are Sitio Nuevo, of about 2,000 inhabitants and 20 miles from Barranquilla, and Remolino, 6 miles further up and with 2,500 inhabitants. Near these towns there are good pasture lands, and many head of fine cattle are raised thereon.

Next comes Calamar, with about 4,500 inhabitants and distant about 65 miles from Barranquilla. It is situated at the entrance of the dike of Cartagena and is of consequence as a relay station between the Magdalena and the port of Cartagena. It also furnishes fresh provisions, poultry, eggs, etc., as well as cattle on the hoof and wood in abundance for the passing steamboats.

Next may be mentioned Buena Vista, Jesus del Rio, and Lambrano. These are small places with but few inhabitants, but quite important as ports for the tobacco districts of the department of Bolivar, and, respectively, distant from Barranquilla 76, 104, and 112 miles.

Magangue, with 3,000 inhabitants and 160 miles from Barranquilla, furnishes general supplies of merchandise, articles of food, etc., to the surrounding country, and is important as the point at which fairs are held three times each year—in February, June, and September—at which all manner of products of the interior and merchandise from the cities of the coast are sold and exchanged. Frequently the business of one of these fairs will reach over half a million. Goods are sold at one fair and collected for at the next. The people from hundreds of miles around gather on these occasions—some to buy, some to sell, and some simply to make merry, running their dances far into the night—and altogether presenting a most interesting sight. On one occasion of this kind I counted along the river at Magangue over six hundred different kinds of water craft, from a little bit of a canoe to a splendid river steamer. The whole thing reminds one of a great camp meeting in the United States, except here the people nearly all travel on burros and in canoes, instead of on horses and in carriages. I was told in Magangue that there was not a wheeled vehicle nearer than Barranquilla.

Mompox, on the Brazo, is on an island of the same name, and is on the opposite side of the island from Magangue. It is quite a pretty, though ancient, city and of much less importance at this time than was the case formerly, owing mainly to the fact that during the dry season there is not sufficient water in the Brazo to admit of its navigation by steamers, as was easily and habitually done in the past. It numbers only about 6,000 inhabitants, many people having moved elsewhere since the Brazo began to be so bad as to affect the trade of the city, nearly all of which has passed over to Magangue, which enjoys greater natural advantages, although while I write it is several feet under water. This means that the Magdalena is 30 feet higher at Magangue than it was when I saw it in February last. Still, at other seasons of the year the Magdalena is "a calm, gracious, generous river, bearing strength in its tide and plenty on its bosom, rolling on through the land slowly and serenely, like a good man's life, and fertilizing wherever it flows."

Then we have Banco, quite a good-sized town of 1,500 inhabitants and distant from Barranquilla 250 miles. It is at the junction of the Magdalena and Cesar rivers, and in time of war is regarded as a strategic point worth holding and fortifying. Here are sold mats made of the straw of the country, some of which are quite pretty and useful; also *loza*, or earthenware, for cooking purposes, holding water, etc.

Then come La Gloria, Puerto Nacional, Bodega de Ocaña or Gumarra, and Bodega Central, places of few inhabitants and distant, respectively, from Barranquilla 285, 307, and 322 miles. They are important, however, as mail stations and as ports for the exportation of much of the products (coffee, hides, caucho, tagua, etc.) of the rich department of Santander, and the introduction to her inland cities of importations from abroad.

Next comes Bodega de Sogamoro, near the mouth of the river of that name. It is composed only of *bodegas* (warehouses) for a portion of the exports and imports of the department of Santander. The principal articles of export are coffee, hides, and caucho, though fine hammocks of grass, as well as of linen and cotton cloth, and certain sorts of sweetmeats are sent to Magangue for sale during the time of the fairs mentioned.

Then may be mentioned Puerto Berrio, Nare, and Islitas, in the wealthy and important department of Antioquia, small places of but few inhabitants, but important as ports for her trade with the rivers. Antioquia, through these ports, exports coffee, hides, and caucho, and receives from abroad large quantities of all sorts of foreign merchandise.

Lastly, in the lower river, comes the port of Yeguas, composed only of *bodegas*, a telegraph office, and a few small buildings for the needs of the employés of the railroad, which is 14 miles long, and which connects Yeguas with Honda. Yeguas is to-day the most important port of Honda for all purposes of its own immediate traffic, as well as that of Bogotá and other ports of the near interior. At this port the river steamers deliver their up cargo, or freight, and take on as their down cargo, or freight, coffee, hides, tobacco, caucho, balsam, and sometimes quinia bark, indigo, panela sugar, etc. Very frequently many boxes of orchids are shipped for Europe and the United States. Formerly an immense quantity of tobacco and quinia were shipped from this point for European and American ports; but, owing to a great fall in the prices of the articles within the last eight or ten years (due perhaps to the falling off of these two articles, and also to the fact that the ruinous tobacco worm presented itself about this time, and the great increase in the amount of quinia raised in India), there is now scarcely any quinia shipped abroad and but small quantities of tobacco. Yeguas is distant from Barranquilla 603 miles.

THE OLD CITIES OF HONDA AND MARIQUITA.

Honda has about 6,000 inhabitants, is 615 miles from Barranquilla, and may still be called (as in the olden days) the immediate port of Bogotá, the capital of the country, and it is still a town of some importance as the business center for the surrounding towns and mining districts, and as a relay station between certain parts of the interior and the coast. Honda is one of the oldest cities in all South America, having been built by the Spaniards in the early days of their occupation of the country. As a rule, its houses are built of stone and brick, and are strong and durable; its streets are narrow and well paved with cobblestones. The river Guali, which divides

Honda in two parts, is now spanned by the railroad bridge, another strong iron bridge for passengers and beasts, and one built of wood for pedestrians.

In the year 1805 Honda was visited by a terrific earthquake, as tradition tells the story, and many first-class buildings, both public and private, were utterly destroyed and razed to the ground. A beautiful and costly bridge, built of stone, after the style of the old Roman bridges, and constructed by the famous Spanish engineers according to the substantial system practiced by them in those days, was also completely annihilated at the same time. The skill of these old Spaniards in engineering and masonry was simply marvelous. The walls of Cartagena, built by these engineers, attest their skill. These walls have defied time. For three hundred years they have withstood the waves of the ocean, which have all these years, as regularly as the pendulum of a clock, dashed and washed their base. In spite of tropical sun and rain these walls still stand as sound and as intact as the day they were completed. They are an enduring monument to the men whose names have perished, but who live and ever shall live in their works.

About 13 miles inland from Honda is situated the old town of Mariquita, once a city of great importance, which was also destroyed by this same earthquake. It is said that at the time of this terrible visitation more than 12,000 persons were killed in Honda and Mariquita. Before the date of the earthquake Honda was a very rich and important city, and boasted of 30,000 inhabitants. It was the center for all sorts of commercial affairs, and had among its population many persons of wealth and position, who lived in great comfort and affluence, and who even acted as commission merchants between that point and Bolivia, Peru, and other important points in South America for all purposes of trade with those distant parts of the Spanish possessions in this part of the world. Since that time, however, the place has never regained what was lost in those days of horror and suffering, and Honda is now simply a small city of about 6,000 inhabitants and only active and of consequence as a commercial center for the surrounding country, through which passes a great part of the merchandise for and from the departments of Tolima, Cundinamarca, and Boyacá, as well as some districts of the department of Antioquia and perhaps of Cauca. It is said that Honda, destroyed by the great earthquake of June 16, 1805, was not less rich nor less populous than Cartagena (with its fortifications which could not have cost less than $75,000,000) and had greater commercial importance than Bogotá.

Dr. Comacho Roldin, in his "Notes of Travel," says of Honda and Mariquita:

> The only description that I have is what I heard almost fifty years ago, on the ground itself, from one of the last surviving witnesses, Mr. Parlo Crespo.
>
> According to him, both sides of the River Guali (which runs through Honda) were lined with magnificent orchards and gardens, behind which were the splendid high houses, residences of these fortunate magnates. Grand ornamental trees, magnificent fruit trees, beautiful spreading palms provided everywhere an agreeable shade—a retreat from the burning sun of the ardent climate. Numerous slaves performed the household service, took charge of the mule packs, and cultivated the fields.

Behind Honda, at the foot of the mountains, some 18 miles distant, lay the city of Mariquita, the royal mining city, to which came and were prepared for shipment the minerals from the central range of mountains. It also served as the summer residence for the families of Honda. This was another city of not less importance than Honda, whose streets were provided—as I myself have seen among the ruins—with sewers or canals of cut stone, through which an abundant water supply came for the use of the city and for irrigating the extensive gardens of the city. Judging by the extent and grandeur of the ruins, this city was at least 1½ miles long by 1 mile wide, and the abundance of fruit trees which yet exist, such as almondros, aguacates, mangoes, canelas, and other rare fruits, give testimony to the opulence of its inhabitants, whose number could not be less than 12,000 or 15,000.

Attempting to form a picture in imagination of this region from the ruins, as well as from the description of Mr. Crespo, it would be like one of those magic Moorish cities, built five or six centuries ago on the sides of the mountains at Malaga, in Spain, under the blue skies of the Mediterranean—a town hid among the foliage, adorned by the feathery tops of the graceful palms, resting under the heavy shade of the ceibas before taking a bath in the laughing waters of the Guali; line upon line of house tops running back terrace above terrace like the hanging gardens of Babylon, and the surrounding hilltops crowned by the imposing masses of convents of the monastic corporations, numerous and rich, which formed such an important element in the social life of that date. One can imagine that he can hear the confused and vague sounds of the common life, the songs of the birds, the calls of the animal life, the vibrations of the bells in the towers, and even the songs of the people, accompanied by the soft bandola and the clearly marked time of the tom-tom. All this ceases. In place of these sounds of life there is heard the grating of rocks and chains, as if drawn over the pavement, and a moment later an underground roll of deep thunder under these mountains, whose dwellers feel a kind of seasickness, and before anyone can think what is happening walls and roofs fall on the miserable people, leaving them crushed in great numbers. There were very few houses left standing. Perhaps from 10,000 to 12,000 people were killed in Honda and Mariquita, and the sound of commercial activity ceased for years, perhaps for ages; and in the cracks of the walls that sheltered man the rootlets of the vines have taken hold to cover with their spreading branches from the view of children the ruined homes of their fathers.

Mariquita was the residence of the Spanish viceroy, and the principal, if not the only, Government mint for coining money in the country was at this place. All this part of the country, including Antioquia, Tolima, and some of Cundinamarca at the least, was then called the "province of Mariquita." This was always in charge of an officer of high rank, who had control of all the rich gold and silver mines lying within its limits, which abounded there, and do so to this day in the near vicinity of the ruined city of Mariquita.

It was here Gonzalo Ximenez de Quesada died at the age of 83 of leprosy. He led an expedition against the Chibcha Indians, and after great hardship captured the cities of Iraca and Tunja, in New Granada, and found a large amount of treasure. He founded the city of Bogotá in 1538. His remains now rest in the cathedral of that city.

PRODUCTS OF THE MAGDALENA VALLEY.

Along the immediate shores or banks of the Magdalena corn is produced in fair quantities, as well as sugar cane, yuca, and plantains, and, in some places, cacao and tobacco; but the little tobacco which one finds planted in isolated places along the river is of but very small account, as the large tobacco and rice plantations and the coffee and sugar estates are, as a rule, all some distance back from the river. There are also grown along the banks quantities of fruits, and here are to be found fine watermelons, muskmelons, aguacates, marañones, mameyes, zapotes, nisperos, caimitos, guanabanas, bananas, mangoes, pineapples, etc., and here and there oranges and limes. Of course, there are also raised, in many places along the river, chickens, turkeys, ducks, hogs, and horned cattle; but away from the cities—and, in fact, many in the cities—the people of the poorer class live almost entirely upon fruits, fish, and yuca, a kind of bread made from a vegetable root.

THE ENTRANCE TO THE MAGDALENA.

At the mouths of the Magdalena there are ugly shifting bars, which make the entrance into the river by seagoing vessels of much draft very difficult and, in some cases, really perilous, and particularly so owing to the want of proper and sufficient pilots and towboats to bring them in. Indeed, several sailing vessels, some coming in and others going out, have struck and been lost on this bar; and more than one steamer has also touched it, so it is said. Although there are some very intelligent persons in Barranquilla, and among them old pilots, who say that there is sufficient water on the bar to admit ocean steamers, a certain steamship company, which is largely interested in a railroad running from the sea to Barranquilla, had, for its own interest, refused to enter the river for many years before it became part owner of the railroad when there really was no danger with a good pilot.

I am convinced that with proper soundings and a good pilot the river can be entered by ocean steamers. Of course, when this company refused to enter the river all other vessels calling at this port did likewise, not knowing at that time the real motive underlying the whole scheme. From the action of this company the insurance companies took alarm and refused to insure ships or cargo which attempted to enter the river's mouth.

It is of great importance that the real facts regarding the bar at the mouth of the river be known. At different times portions of land near the mouth have been washed off, and certain changes have taken place. Several islands also near Sabanilla and in front of the river's mouth have been entirely swept away. At one time a large body of water went through what is termed the Canal de la Piña, near the sea, and came out into the Bay of Sabanilla. For many years all the freight that passed between Sabanilla and Barranquilla was sent through this "caño," cut by this enormous flood, in bongoes and canoes. After some time, however, this "caño" filled up with sand, old trees, etc., and had to be abandoned. About two years ago, though, the water again began to enter this "caño" with force, but it has not been cleaned nor used in any way.

To-day the mouth considered the best, and indeed the only available one, is that directly out in a straight line with the river, and known as Boca de Cienega.

There is nothing which so retards the development of the valley of the Magdalena as the inability of ocean steamers and sailing vessels to enter the mouth of the river and anchor at Barranquilla. Steamers and sailing vessels now anchor at Puerto Colombia, 18 miles from the custom-house at Barranquilla. The freight is conveyed to and from the vessels by lighters and the railroad at a cost, in many instances, equaling the charges from New York to Puerto Colombia, and still the railway company pays no dividends to its stockholders. If these boats could enter the river's mouth, they could sail upstream during the greater part of the year for a distance of 120 miles and at all seasons from 30 to 40 miles. The Magdalena needs a system of jetties like those at the mouth of the Mississippi. When this is had, the valley will become the most productive and valuable body of land, owing to its proximity to the United States, in all South America. But for this we must wait for other men and other times.

COMMERCE OF THE MAGDALENA.

The exports, imports, and domestic trade passing up and down the river amounts to about $25,000,000 per annum. The exports consist of coffee, tobacco, hides, quinia, caucho, cocoa, fustic, divi-divi, tangua, balsams, emeralds, and gold and silver bullion and ore. The importations are all classes of general merchandise—silk, cotton, and woolen goods; boots and shoes, all kinds of crockery and glassware, implements of agriculture, building material and machinery for vessels and various sorts of manufactories, large quantities of brandies and wine, kerosene oil, etc.

During the last six or seven years the commerce of the country has increased in a most notable manner, and it is still constantly increasing and improving. This great advance in trade is due, it is generally conceded, and which is no doubt the true explanation of the matter, to the peace which now prevails and which has continued to reign throughout Colombia since the year 1885, the date of the last revolution which took place in the country.

Another most singular reason is given for the increase of products in Colombia, viz, that the issue of paper money having driven all gold and silver from circulation, the people who earn a surplus of this paper money do not now hoard it, as they had always done before with silver and gold, but invest it in coffee and rice plantations, believing the latter better things to hold than paper money worth 50 cents in gold to the dollar.

There are now plying upon the Magdalena from Barranquilla nineteen steamboats for cargo and passenger traffic, as well as several steam launches, and from Cartagena three steamboats ply the river, similar to those from Barranquilla. Several others are now in course of construction, however, in these two ports, and within a year's time, more or less, no doubt there will be five or six more steam vessels on the river.

MAGDALENA RAILROADS.

The principal railroad that taps the Magdalena is that known as the Bolivar Railroad, which connects Barranquilla with shipping in the Bay of Sabanilla at a point called Puerto Colombia, distant 17 miles from Barranquilla, and over which passes the greater part of all the merchandise that is received from abroad and which is sent out of the country. Another railroad touches the river at Puerto Berrio, department of Antioquia, and runs 30 miles in the direction of Medellin, the capital of that department, leaving something over 100 miles still to be built of that projected road. Expectations for its speedy completion are not, I believe, very generally entertained. Then there is the road between Yeguas and Honda, in the department of Tolima, 14 miles in length, over which passes a great part of the merchandise introduced into, and exported from, this part of the country. There is still another short road, some 24 miles long, which begins at the port of Girardos, 108 miles above Honda, and which forms part of a proposed road to Bogotá. Many miles of road are still unfinished, however, and for some years past the work on it has ceased altogether; but I am informed that an American company will soon complete the road.

In regard to railroads in process of construction, which are intended to communicate with the Magdalena, most prominent is the road which is to begin at Cartagena, on the coast, and which is intended to come out on the river near the town of Calamar, and which, it is said, is now about to begin operation. Another from Santa Marta is in construction, and is intended to tap the Magdalena at some point above Barranquilla, according to statements of persons interested in the work; but as yet it has only got as far as Rio Frio, a distance of 30 miles from Santa Marta. The road from Honda to Yeguas is also being prepared for extension to Conejo (about 14 miles from Yeguas), and work has already begun upon the new line. When finished, this addition to the Honda road will be of great value and convenience to shippers of cargo as well as to steamboat-owners and the public in general, as Conejo is a good and safe port for steamers, and that of Yeguas, now in use, is bad and inconvenient on many accounts, and has between it and Conejo several passes that are very ugly in time of low water. Another road in projection, and on which the work is to be begun during the present year, is to run from Cambao to Bogotá. The road will be built by the present owners of the Honda and Yeguas road.

LANDS AND WOODS OF THE MAGDALENA.

There are leagues upon leagues of rich and entirely uncultivated lands all along the shores of the river and in its wealthy valley. There are thousands of miles of the country belonging to the Government which are only awaiting occupation and cultivation by anyone who may choose to settle on them. Unfortunately, however, these regions are not very healthy for the white man.

Along the banks and a little back from the river there are virgin forests of enormous extent, and among the many varieties of timber may be found, as the most valuable, the cedar, the mora (fustic), the roble (oak), the guayacan (lignum-vitæ), the caoba (mahogany), the ibano (ebony), red ceiba, granadillo, campana, carreto, canalete, etc. Several of this number are exported in considerable quantities, as the mahogany, cedar, the fustic (which latter is a fine dyewood), and the guayacan (for railroad ties). The others are, for the most part, used in the country for making canoes, furniture, and building purposes in general. Mahogany is so cheap that nearly all the doors and windows in Barranquilla are made of that wood. Yellow-pine flooring is worth more per foot in this market then cedar or mahogany. Mahogany and cedar may be had for the cutting; indeed, any of the woods mentioned.

THE DIKE OF CARTAGENA.

In regard to what is known as the dike of Cartagena, it may be stated that in the days of the early Spaniards that stream was at first a very small but useful body of water running from the Magdalena toward a lake, or "cienaga," inland, called La Cruz, and coming out into the Carribbean Sea after passing through some other cienagas a few leagues below the Bay of Cartagena. It left the river at a point called Barranca Vieja, about a mile and a half above Calamar.

The Spaniards improved this canal, or dike, to a considerable extent, and it was used by them for many years as one of the principal means they had for communicating with the big river. When these colonies revolted against Spain, however, the authorities of the mother country directed the entrance of this stream from the Magdalena to be effectually shut up with layers of stone in order to prevent its use by bongoes, canoes, etc., by the people in revolt; and so well was that work done that to this day those stones are still there, and plainly in sight at low water, and totally unmoved by man, by time, or by the action of the waters of the old Magdalena, which for centuries have beat upon them.

Many years afterwards, about the year 1844, a contract was entered into with the celebrated American engineer Col. George M. Totten to open the dike and put it in navigable condition for steamboats. After proper examination and surveys, Col. Totten selected as a point at which to make his first cutting for the new canal a place about a mile and a half below the old entrance at Barranca Vieja, now called Calamar, of which I have already spoken, and went in almost a straight line from the river for a distance of 6 or 7 miles; then, after leaving a bend, made another cutting of about the same extent, which put him in connection with the waters of the old dike. He was prevented from entirely completing his contract, owing, it has always been said, to want of funds on the part of the present department of Cartagena, or, at any rate, to their failure to furnish the necessary money for the completion of the dike as contracted for. All work on it was then abandoned and given up entirely for many years.

At different times since then various companies have been formed to open the dike and put it in order for navigation by steamboats, and, after many failures, it was taken in hand about ten years ago by Mr. Pedro Velez, of Cartagena, in conjunction, it is said, with the Atlas Line of steamers from New York, and only since then has anything been done of a positive or permanent nature to further and perfect this enterprise.

There is a line of steamers running through the dike from Cartagena to Barranquilla and Honda. Unfortunately, however, for that enterprise, in time of low water the dike is sometimes not navigable by these steamers, and all the work upon it by different contractors in later years has not been sufficient to overcome this difficulty.

THE MAGDALENA DURING THE REVOLUTION.

In the latter days of the revolution made against Spain by its subjects in this country there were several naval combats on the Magdalena between the two contending parties, there being then in use only the bongoes and canoes of that day. Two of the most important of these very bloody battles took place at or near Barbacoas and Teneriffe, which resulted in the utter defeat and rout of the Spaniards; and these signal victories on the water, coupled with simultaneous successes on shore, were mainly instrumental in driving the Spaniards to the towns on the coast, and no doubt subsequently compelled them to withdraw entirely from the country.

The Opon River, one of the tributaries of the Magdalena, though rather small in dimensions, is famous as the river up which the celebrated Spanish leader Gonzalo Ximenez de Quesada made his ascent on his first voyage of discovery and conquest, and upon whose banks he found food and rest for his famishing and dying followers.

THE ISLANDS OF THE MAGDALENA.

There are a great number of islands in the Magdalena, and some of them are quite large and of considerable value and importance. Mompox, as an example, is situated on the island of that name. It extends from Boca Tacaloa to the Banco, a distance of about 76 miles by the Brazo of Mompox and about 105 miles by the Cauca River and the Brazo de Loba. It is inhabited and cultivated in almost its entire length. Another large island extends from a little below the Banco to a little above the town of Rejidor, is about 34 miles long, with many towns and wood stations along its banks. The island of Morales, which separates the Brazo de Ocaña from the Brazo de Morales, is something like 45 miles in length and has on its shores the important port of Bodega Central and other small towns or stations for wood, etc. There are other rather large islands also, as Los Gomez (in front of Barranquilla), Cabica, Lara, Guaimaro, and others much smaller, many of which are private property. All of these islands are well supplied with wood and water, and offer good pasture grounds for cattle, as well as for raising all manner of vegetables and fruits, rice, and sugar cane

FISH, BIRDS, AND REPTILES OF THE MAGDALENA.

In the Magdalena there are numbers of fish for food, much sought for and very generally used in the country. Notable among them I mention the bagre, dorada, the doncella, and boeachico. The ferocious crocodile, or alligator, also abounds. Its food is almost entirely fish, it never touching anything in the shape of carrion.

Birds line the whole course of the river—some of most beautiful plumage. Parrots, paroquets, macaws, kingfishers, the beautiful garzas of white plumage and of four or five sizes, various kinds and sizes of the pretty humming bird, the toche, the ruiseñor or nightingale, the mochuelo, azulejo, canary birds of the country, the rich cardinal, and many others are seen as one journeys along the river. Various kinds of wild ducks, too, as well as wild turkeys, partridges, doves, paujels, and the guacharaca (a species of pheasant), are quite abundant.

There are many reptiles of the most venomous type in the woods, swamps, and fields. They are sometimes even met with near to and within inhabited places. Among the worst kinds known in the country are the cascabel or rattlesnake, the equis, the coral, the birre, the boa, and several kinds of mapaná.

In the woods along the banks of the river are also frequently seen numbers of monkeys springing among the branches. A sort of wild hog, known as the "ponche," is often met with on the banks of the river.

I have purposely omitted an account of Barranquilla, the principal seaport of Colombia. This will be given in a separate paper.

ACKNOWLEDGEMENT.

I wish to acknowledge my indebtedness to Capt. William Bradford for many of the facts of the foregoing article. Mr. Bradford served in the old navy of the United States, and is a graduate of the U. S. Naval Academy. He is a highly cultivated and most popular gentleman. He has been in command of one of the large river steamers for more than twenty years, and the facts given by him touching the river are most reliable; they were given in answer to questions asked by me.

JOHNSON NICKEUS,
Consul.

UNITED STATES CONSULATE,
Barranquilla, June 12, 1892.

BUTTERINE IN MALTA.

REPORT BY CONSUL WORTHINGTON.

I am in receipt of a letter from a firm of manufacturers of American butterine, who say:

> We are manufacturers of brand export butterine, a satisfactory substitute for pure butter. Our product possesses a decided advantage over natural butter for shipment to far-away points and for use in hot climates, in that it never becomes rancid. We pack it in 2-pound, 5-pound,

10-pound, and 25-pound tins, hermetically sealed, and are prepared to furnish any other style of package that may be desired. * * * If, when favoring us with a reply, you will say what you know as to quantities of butter, butterine, and oleomargerine now being used in your market, present sources of supply, styles of packages used, and quotations now ruling, we will be under many obligations. Being desirous of extending our business to your part of the world, we ask for the information desired.

In reply to the foregoing I would say that a fair trade is done here in butterine or margerin, principally imported from England. I can not state the actual quantities imported, no statistics being obtainable; but it is calculated that about 10,000 packages are imported annually. It is imported in tins of the sizes mentioned and wooden packages, say oval tubs of 14 pounds, and Irish casks of 60 pounds.

Butterine is principally consumed between the fall and spring. Last season's prices varied from $9.43 to $10.28 per 100 pounds.

In view of the remarks as to the advantages possessed by the butterine manufactured in the United States, their brand should become a favorite in this market and have a good share of the sales here.

It would be desirable for those wishing to engage in the trade to mail a small tin (by parcel post) as a sample and to have their prices, c. i. f. (cost, insurance, and freight) in Malta, for their various-sized packages. It would also be well to state whether one quality only is manufactured. The cheapest quality would have the largest sale here.

The firm of C. Breed Eynaud & Co., of Malta, would, I think, undertake the agency of such butterine.

JOHN WORTHINGTON,
Consul.

UNITED STATES CONSULATE,
Malta, July 20, 1892.

EGYPTIAN WEIGHTS AND MEASURES.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

I have the honor to inform you that on May 1, 1892, the metric decimal system of weights and measures came into force in all the Government administrations in Egypt.

The agrarian measures have not been altered, but will remain the same as heretofore until further order.

The tonnage of vessels will also be measured as heretofore.

The meter of the international commission is the standard by which the Egyptian weights and measures shall be reckoned.

I inclose herewith a translated copy of the weights and measures of Egypt, with their equivalents in the metric and the English systems.

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES AGENCY AND CONSULATE-GENERAL,
Cairo, May 5, 1892.

Egyptian Weights and Measures.

[Inclosure in Acting Consul-General Grant's report.]

Table showing equivalents.

MEASURES OF LENGTH.

Egyptian measure.	English measure.	Metric measure.
		Meters.
1 diraa baladi	22.835058 inches	0.58
1 diraa mimari	29.5281 inches	0.75
1 kassabah	139.766304 inches	3.55

MEASURES OF WEIGHT.

		Kilograms.
1 dirhem	1.760875 drams avoirdupois	0.00312
1 okieh (12 dirhems)	1.320656 ounces avoirdupois	0.03744
1 rotl (144 dirhems)	0.990492 pound avoirdupois	0.44928
1 oke (400 dirhems)	2.751367 pounds avoirdupois	1.248
1 cantar (100 rotolis)	99.049223 pounds avoirdupois	44.928
1 hamlah (60 okes)	165.082039 pounds avoirdupois	74.88
1 Alexandrian cantar (112 okes)	308.153139 pounds avoirdupois	139.776
1 heml (200 okes)	550.273463 pounds avoirdupois	249.6
1 metric ton	2,204.62124 pounds avoirdupois	1,000
1 English ton	2,240 pounds avoirdupois	1,016.04754

MEASURES OF WEIGHT FOR PRECIOUS SUBSTANCES.

		Grams.
1 mithkal (1½ dirhems or 24 kirats)	72.223392 grains troy	4.68
1 dirhem (16 kirats or 64 kamhas)	48.148928 grains troy	3.12
1 kirat (4 kamhas or one-sixteenth of a dirhem)	3.009308 grains troy	0.195
1 kamha (one-fourth of a kirat or one sixty-fourth of a dirhem).	0.752327 grain troy	0.04875

MEASURES OF CAPACITY.

		Liters.
1 ardeb	5.447392 bushels	198
1 wébah (one-sixth of an ardeb)	3.631595 pecks	33
1 kilah (one-twelfth of an ardeb)	3.631595 gallons	16.5
1 roub' (half a kilah)	1.815797 gallons	8.25
1 malwa (one-fourth of a kilah)	3.631595 quarts	4.125
1 kadah (one-eighth of a kilah)	1.815797 quarts	2.0625
1 nesf kadah (half a kadah)	1.815797 pints	1.03125
1 roubaah (one-fourth of a kadah)	3.631595 gills	0.515625
1 toumnah (one-eighth of a kadah)	1.815797 gills	0.2578125
1 karroubah (one-sixteenth of a kadah)	0.907898 gill	0.12890625
1 kirat (one thirty-second of a kadah)	0.453949 gill	0.064453125
1 daribah (8 ardebs)	43.579142 bushels	1,584
1 large fard (14 roub')	3.177645 bushels	115.5
1 small fard (7 roub')	1.588822 bushels	57.75

EQUIVALENTS OF METRIC AND EGYPTIAN WEIGHTS AND MEASURES.

Measures of length.

One millimeter is equal to 0.001724137931 diraa baladi.
One centimeter is equal to 0.01724137931 diraa baladi.
One decimeter is equal to 0.172413793103 diraa baladi.

One meter is equal to 1.724137931034 diraa baladis.
One decameter is equal to 2.81690140845 kassabahs.
One hectometer is equal to 28.169014084507 kassabahs.
One kilometer is equal to 281.69014084507 kassabahs.
One myriameter is equal to 2,816.901408450704 kassabahs.

Measures of weight.

One milligram is equal to 0.000320512820512 dirhem.
One centigram is equal to 0.0032051282051 28 dirhem.
One decigram is equal to 0.032051282051282 dirhem.
One gram is equal to 0.32051282051282 dirhem.
One decagram is equal to 3.2051282051 28205 dirhems.
One hectogram is equal to 32.05128205128205 1 dirhems.
One kilogram is equal to 320.512820512820512 dirhems.

Measures of weight for precious substances.

One gram is equal to 20.51282051282 kamhas.
One decigram is equal to 2.051282051282 kamhas.
One centigram is equal to 0.2051282051282 kamha.
One milligram is equal to 0.02051282051282 kamha.

Measures of capacity.

One liter or cubic decimeter is equal to 0.005050505 ardeb, or 1 roubaah, 1 toumnah, 1 karroubah, or 1.515151515 kirats.

One decaliter is equal to 0.05050505 ardeb, or 1 roub', 1 nesf kadah, 1 roubaah, 1 karroubah, or 1.151515151 kirats.

One hectoliter is equal to 0.505050505 ardeb, or 6 kilahs, 1 roubaah, 1 toumnah, 1 karroubah, or 1.515151515 kirats.

One kiloliter or cubic meter is equal to 5.05050505 ardebs, or 1 roub', 1 nesf kadah, 1 roubaah, 1 karroubah, or 1.151515151 kirats.

One deciliter is equal to 1.5515151515 kirats.
One centiliter is equal to 0.1551515151 kirat.
One milliliter is equal to 0.01551515151515 kirat.

DESIGNATION OF EGYPTIAN WEIGHTS AND MEASURES.

Measures of length.

Diraa baladi—measure of length divisible in 24 kirats.
Diraa mimari—measure of length containing 75 centimeters.
Kassabah—measure of length containing 3.55 meters.

Measures of capacity.

Ardeb—measure of capacity for dry substances.
Wébah—one-sixth of an ardeb.
Kilah—one-twelfth of an ardeb.
Roub'—one twenty-fourth of an ardeb.
Malwa—one forty-eighth of an ardeb.
Kadah—one ninety-sixth of an ardeb, divisible into 2 nesf kadahs, 4 roubaahs, 8 toumnahs, 16 karroubahs, or 32 kirats.

Measures of weight.

Dirhem—measure of weight divisible into 16 kirats or 64 kamhahs.
Okieh—measure of weight equal to 12 dirhems.

Rotl—measure of weight equal to 144 dirhems.
Oke—measure of weight equal to 400 dirhems.
Cantar—measure of weight equal to 100 rotolis or 36 okes.
Mithkal—measure of weight equal to 24 kirats or 1½ dirhems.
Kirat—measure of weight equal to 4 kamhas.
Kamha—measure of weight equal to one-fourth of a kirat or one ninety-sixth of a mithkal.

Land measures.

Square kassabah—land measure equal to the surface of a square containing 3.55 meters on each side.

Feddan masri—land measure equal to 333⅓ square kassabahs and divided into 24 kirats kamel, 72 habbahs, 144 daneks, 576 sahms, or 13.824 sohts.

EMIGRATION FROM ROTTERDAM TO THE UNITED STATES.

REPORT BY CONSUL GARDNER.

The direct emigration of the current calendar year from the port of Rotterdam to ports of the United States is of much greater volume than ever before known. Between January 1, 1892, and May 15, 1892, the steerage departures from this city to New York by steamers of the Netherlands-American Steam Navigation Company aggregated 15,742 persons. This record of only four and one-half months surpasses the average record of each entire calendar year for ten years prior to 1892.

THE RECORD OF TEN YEARS.

The emigrant departures from Rotterdam direct to the United States have been by calendar years as follows:

Years.	Number.	Years.	Number.
1882	11,516	1889	15,916
1883	8,368	1890	18,400
1884	5,741	1891	34,531
1885	4,398	Total	140,689
1886	9,698		
1887	16,211	Average each entire year	14,068
1888	15,910	Total for 4½ months in 1892	15,742

The ratio of previous years being maintained, will give a total exceeding 40,000 for the calendar year 1892.

THE INSPECTION OF EMIGRANTS.

In view of the increasing emigration from this city, I have satisfaction in reporting that the officers of the Netherlands-American Company, in whose hands the traffic is, are apparently conscientious in their efforts to comply fully with requirements of the United States laws relating to emigration. The doctors of their steamers are Americans, and are naturally predisposed to make their examinations of emigrants for the United States rigid. A remote suspicion of contagious disease is enough to prevent the departure of the suspect, who is detained here in hospital at the company's expense until the fact of freedom from contagion is established.

In the case of all Russian peasants presenting themselves for passage the company requires, in addition to inspection by the ship's doctor, that special examination be conducted by a sworn resident police doctor. In an affidavit made before the consul of the United States and intended for delivery to the captain of the steamer, this doctor makes declaration that he has examined each emigrant named and described; that all are free from contagious disease; and that he has personally superintended the fumigation in Rotterdam of all their baggage and personal effects.

EXAMINATIONS BEFORE TICKETS ARE SOLD.

As regards the effort of the Netherlands-American Company to prevent the transportation to the United States of prohibited classes of emigrants other than those physically diseased, it may be reported that there has been prepared in different languages and supplied to the company's agents throughout Europe a printed digest of the United States laws governing emigration. Accompanying such digest is an instruction to each agent warning him that, in the event of refusal of the United States authorities to receive any passenger booked from his office, the total cost of returning such rejected passenger to Europe will be at his (the agent's) personal charge. An instruction similar to this has been recently issued to European agents, as I am informed, by a majority of the transatlantic lines engaged in the emigrant traffic.

In this connection, I take the liberty to add that, so far as my observation extends, the great steamship companies are rather allies than antagonists of the United States authorities in the effort to prevent prohibited emigration—and this from a purely business and selfish motive. It does not in the least pay them to risk the transportation to America of such emigrants as are liable to cause detention of their steamers in quarantine and liable also to be eventually sent back to Europe.

EMIGRANTS RETURNED TO ROTTERDAM.

Out of the 15,742 emigrant departures from this port to New York during four and one-half months to May 15, 1892, 55 were sent back for causes as follows: Pregnancy, 3; pauperism, 7; contract laborers, 27; diseased, 18; total, 55. This proportion is far greater than hitherto known, and argues increasingly rigid methods at the Barge Office in New York, of which the transportation companies are not slow to take cognizance.

ASSISTED EMIGRATION.

As indicating the extent to which emigration from this port is in any wise assisted, I report as follows: Of the 18,400 steerage passengers sailing during the calendar year 1890, 4,625 were provided with passage tickets which had been purchased in the United States. Of 34,531 sailing during 1891, 6,374 had tickets thus purchased. It is indicative of the unobjectionable character of this class of emigrants from this port, however, that almost all persons provided with such tickets were Netherlanders, than whom there is no better emigrant class, and that the tickets had been purchased and sent to them by family friends already established and prosperous in the United States.

THE NATIONALITY OF EMIGRANTS.

Concluding, it is to be reported concerning the nationality of emigrants for the United States sailing from this port that the largest proportion is Austrian. Second in numerical strength are the Netherlanders; then come the Russians, Italians, and Germans in the order named.

WALTER E. GARDNER,
Consul.

UNITED STATES CONSULATE,
Rotterdam, June 10, 1892.

FACTORIES AND WORKSHOPS IN GREAT BRITAIN.

REPORT BY CONSUL BRUCE, OF LEITH.

The report of the chief inspector of factories and workshops for Great Britain for the year ended October 31, 1891, published yesterday, consists of 174 pages, viz, 34 pages of letter press from various inspectors in different parts of the United Kingdom; 5 pages of names, dates of appointments, salaries, etc., of inspectors of factories in Great Britain; 4 pages of the number of factories and workshops in each district; and 131 pages of returns of prosecutions for offenses against the factory and workshop act during the year ended October 31, 1891, such actions being chiefly for the illegal employment of young children, 435 cases out of 463 resulting in conviction. The information of principal value to workmen in the United States and their employers, owners of factories, workshops, etc., is found in reports from inspectors relating to (1) the tin-plate industry, (2) the cutlery industry, (3) boot-manufacturing, (4) cotton-manufacturing, and (5) the state of trade in Scotland and various parts of England.

Mr. Lewis, inspector for the Swansea district, referring to the tin-plate industry, says:

> It is patent to the careful observer that the rush of material prosperity has for some time past been gradually easing up, * * * and that in some other industries sound business is becoming scarce. * * * Many works are still closed, current prices being, in the opinion of their owners, below prospective values, and until American stocks are further reduced there can be no prospect of progression.
>
> Then comes the great question, "Will America make tin plates?" Many and various are the opinions expressed thereon, and it is gratifying to note that the majority of Welsh manufacturers have faith in the future of the trade, believing, as they do, that, should even the American demand gradually fall off, the annual loss may be equalized by opening up new markets in other parts of the world.

Then, again, there are not a few makers who have the temerity to think that the United States may again alter their economic policy, and that, under the generous influence of a largely reduced tariff, the Welsh tin-plate industry may shortly receive an immense impetus.

The fact that large business firms have recently removed from Swansea to the United States gives special significance to the word "temerity," implying that the "generous influence of a largely reduced tariff" was a thing rather hoped for than expected, as an "immense impetus" to the trade in Swansea would mean corresponding depression in the United States.

Welsh flannel and hosiery manufacturers have been kept well employed by the steady demand from the nontextile districts, for, although the price may be high, the Welsh workingman and his family are very partial to the wearing of native-made stuff (*gwlaneu gwlad*).

The relations between employer and employed have not at any time during the year been entirely free from friction, but the marshaling of forces and general call "to arms," at one time threatened, has happily been averted hitherto. Still, the year has been one of much controversy, and has been characterized by desultory skirmishing and guerrilla warfare. After all, in the midst of this spirit of conflict and of much "spoiling for a fight," there prevails a growing desire for peace, and intelligent men on both sides who appreciate the outlook are turning all their energies towards the formation, on an equitable basis, of boards of conciliation and sliding-scale associations.

Inspector-Captain Smith, of the Sheffield district, says:

Sheffield men are still recognized as the most skillful in the world; but, unfortunately for Sheffield, her workmen are to be found not only in Sheffield, but in many parts of the world. In the United States of America the rate of wages is sufficient to attract the cleverest workmen, who impart their knowledge to others. This fact and the operation of hostile tariffs are doing much damage to many branches of our "light" cutlery trades. On all sides I hear complaints. The occupier of an old, established firm told me that he had not received an order for months. I read in our local papers that since the day when the McKinley tariff came into operation two new cutlery manufactories have been started in the United States.

Mr. Johnston, inspector for the Bristol district, remarks:

The boot trade of Bristol and suburbs, together with the tanneries, may be considered the most important, and has shown more expansion of late years than any other.

The lighter description of goods is made in Bristol and heavy, hobnailed boots in the suburbs.

In both cases the work is carried on partly in factories and partly in workshops, for the uppers are cut out and sewn and the soles and heels cut by machinery in the factories.

Of the materials thus prepared, a part is made up into the finished articles in the factories and part is given out to workers to be done at their own homes.

A feature of this trade is the attendance of crowds of women and children at the factories in the earlier part of the week for the purpose of obtaining materials, which are delivered again at the end of the week in a finished state.

In these suburbs boys are employed in large numbers in workshops attached to the cottages to hammer in the hobnails into boot soles.

The workshops seldom afford proper cubic space, and a good deal of illegal work goes on.

The cottages are scattered over a wide extent, and the alarm is given when the inspector is known to be about, so that it would occupy one person's entire time during the autumn—the busy season—to keep a proper control over the work.

The chief inspector refers to the report of Inspector Osborne as "one of much value," with "details," however, "not clearly understood even by occupiers and operatives themselves." It relates to what is known as sizing, whereby inferior goods can be placed cheaply in the market to compete with honest muslin. If difficult to understand scientifically, it is exceedingly plain to the wayfaring man after it has undergone the process of washing, whereby an apparently fine piece of muslin becomes a very coarse quality of cheese cloth. Mr. Osborne says:

> As a result of the scarcity of American cotton during the war, there arose a demand for Surat cotton, its very short staple rendering the yarn spun from it rougher and more liable to break. Thus the use of special forms of size became essential to secure better weaving, and also to prevent the liability of the warp threads to "star" and break with the friction of the healds and reeds.
>
> At the same time manufacturers, under the pressure of the merchants, had to solve the problem of producing cheap cloth with the maximum weight and the minimum of cotton. This originated a class of goods the demand for which by no means ceased when cotton again became plentiful.
>
> In these circumstances "sizing" (some form of which has always been in vogue as far as we know; the natives of India use rice water) became a fine art, its aim being to fix in the warp threads the largest weight of china clay, etc., that could be carried through the weaving process. Owing to the clumsy methods in which these prescriptions were compounded, moisture became very important, and, in addition to the tallows and starchy matter used to give cohesion, the sensitive salts (chloride and sulphate of calcium and magnesium) were employed from their known affinity to moisture. In this way 250 per cent of weight can be added to 100 pounds of cotton warp on occasion.

Mr. Henderson, superintending inspector, reporting upon the state of the shipbuilding trade in Scotland and the north of England, says:

> In my last year's report I referred to the gloomy outlook which it then presented. Freights fell seriously and thousands of tons of shipping were laid up. As the year advanced freights did not improve, but ships continued to be built, the low price of material, no doubt, being a temptation. In July, when the usual holidays occurred in the west of Scotland, the depression was about at its worst, and some of the largest shipbuilding yards on the Clyde had not a keel laid down. The employers' association then gave notice of a reduction of 5 per cent, but this was stoutly resisted by the "riveters," a class of men who usually make very high wages, although they can hardly be classed as skilled workmen. A strike was the result, which seriously disorganized the trade for a month or six weeks. The strike was repudiated by the men's own trade society, and ultimately, after a long controversy, they accepted the reduction and went back to work.

In speaking of textile interests, Mr. Henderson says:

> The past has been one of the most trying years ever experienced in the cotton manufacturing districts. It is estimated that more money has been lost in Lancashire during the last twelve months than in any single year since the cotton industry was established. The quarter which ended on September 30 has been a particularly disastrous one to many cotton-spinning firms in Lancashire. The condition of affairs in Lancashire at the present time is regarded by some who have had long experience in the trade as very critical. For a long period there has been a growing tendency on the part of private capitalists to withdraw from the business. I referred to this last year in some remarks I made with respect to the Blackburn district, and they are applicable to a much wider area. It is distressing to witness the havoc which has been made in some of the picturesque valleys of Lancashire by the pressure of modern emulation and competition. Factories and cottages closed and untenanted, many of them unroofed and in ruins, meet the visitor at almost every turn, and they give some indication of the great sacrifice of capital which must have been made before the present hopeless condition was reached.

Inspector-Captain Bevan, of the Walsall district, reports:

No important new works or industries have been started in my district within the last twelve months. The iron mills have been only fairly employed, and at the time I write (October 10) a reduction of 2½ per cent has taken place in the ironworkers' wages, as decided by the conciliation board, such reduction being fixed by the present price of finished iron. The high price of coal and of the raw material has, it is said, brought this depression about. The hollow ware, nut and bolt, and galvanizing trades are depressed at present—in fact, unusually so.

Mr. Prior, inspector of the Huddersfield district, reports:

The past year has, in my district, been a season of industrial depression, and the outlook at present is not very promising. Several of our oldest and best-known manufacturing firms have been obliged to call their creditors together, and the enterprise of their neighbors is apparently checked by the wondering inquiry, "Whose turn will it be next to go down?"

It would be presumptuous on my part to pretend to fully account for this decline, but there are two important causes which can not be overlooked. One of these is the recent increase in the United States tariff, which has for a time paralyzed the American trade. The other is that during the last five or six years a complete revolution has taken place in the fancy woolen and worsted trade by the substitution of fast for slow looms.

The business outlook of Great Britain, as presented in the report, is certainly neither flattering nor hopeful.

WALLACE BRUCE,
Consul.

UNITED STATES CONSULATE,
Leith, July 22, 1892.

CORN CROP IN SOUTH AFRICA.

REPORT BY CONSULAR AGENT HOLLIS, OF DURBAN.

The principal staple of food for the 500,000 natives of Natal and Zululand is corn, or "mealies," as it is called here. This is white corn, not yellow. For some reason or other the natives are prejudiced against the latter and will not touch it, although in Zululand the natives raise yellow "mealies" closely resembling the American yellow corn.

When used as food the corn is ground into a coarse meal, and this is simply boiled with water in an iron pot, making ordinary porridge.

Corn is to the Kaffir and Zulu what rice is to the Indian coolie and the Chinaman. Any failure in the corn crop means a certain amount of distress among the native population, and also necessitates the importation of corn from other countries.

The corn crop last year was a good one, and there was a considerable surplus for export—about 150,000 bushels—but before this year's crop is available all of what remains of last year's crop will have disappeared.

In the coast districts and in Zululand the crop is about one-half of what it ought to be, and the shortage is estimated at about 200,000 bushels, but the accuracy of these figures can not be vouched for, as there are no official statistics from which figures can be obtained. Some dealers place the shortage at less and some at more than the above figures, but I am of the opinion that the latter estimate is nearer the mark. From the upcountry districts reports come down of short crops in some places and full crops in others.

A few years ago, after a short crop, the dealers imported some corn from the River Plate, but this corn did not give any great satisfaction, and it is probable that when the time comes for importing corn this year the dealers will look to the American market for their supplies if business connections can be made with the American exporters in time for this trade, as American corn is much preferred to other corn.

In this warm climate corn is soon attacked by the weevil, and consequently the corn merchants only purchase small amounts from time to time, just sufficient to supply the immediate demand.

All corn is handled whole, and is not ground except when the meal is required for immediate consumption. In consequence of the smallness of this market a large quantity of corn placed upon it at any one time would break the market and would mean a heavy loss to all concerned in the transaction.

The importation of corn will probably begin in November, and will be by steamers of a tonnage of from 1,500 to 2,000 tons, or even smaller.

Should any exporters in the United States desire to make an effort to secure the probable trade in corn with this country, I would suggest that they address their communications to this office, and I will guaranty to distribute them, equally and without favor, among the several corn merchants of this port. I would also suggest that exporters, in writing to this office, give full particulars *in re* communication by cable, as it is a general practice here among the importers to place indents by cable, the A. B. C. code being the one principally used.

If these suggestions are carried out much valuable time will be saved.

W. STANLEY HOLLIS,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Durban, July 1, 1892.

CLIMATE OF HONDURAS.

REPORT BY CONSUL PETERSON, OF TEGUCIGALPA.

The North American contemplating a trip to Central America, and especially to Honduras, takes it for granted ordinarily that he is about to enter a pest-ridden, fever-laden, sun-parched section of the globe.

The fact is that nothing can be further from the truth. Central America, and especially Honduras, is favored with a comparatively temperate, and certainly with a healthful, climate. There are various gradations of climate, depending upon locality and elevation above sea level. The heat is greater on and near the coasts and in the lowlands, but even in these localities the heat of midday is compensated by the cool nights and delicious mornings.

Endemic fevers are comparatively of rare occurrence, and a proper attention to the laws of health will insure indemnity from the effects of change in climate.

There are few poisonous reptiles, and savage wild beasts are unknown. The only wild beast worth mentioning is the mountain lion, or a species of tiger, which never attacks man. On the coasts there are mosquitoes and sand flies, but no more of these than are found along the large rivers of the United States. The pest of the interior is the common flea.

The following article concerning the climate and temperature of the city of Tegucigalpa, the capital of the Republic of Honduras, gives a first-rate idea of the meteorological conditions of the interior of this Republic; and, moreover, it may be taken as a standard for those of the interior of all Central America. The article is taken from the Honduras Mining Journal, published in this city in English by Dr. R. Fitzgardner, a naturalist of well-known ability and the Government's geologist and assayist:

The city of Tegucigalpa is located about 3,200 feet above sea level, in north latitude 14° 15′ and west longitude 87° 10′, in a direct distance from the Pacific Ocean of about 70 miles. The valley of Tegucigalpa, if it may be called so, is one of the many topographical indentations found is Honduras between stratified and eruptive rocks. While the greater part of the city is built upon the stratified red marls of the Permian group, its immediate surroundings, abruptly rising towards the northeast, are built up of porphyry and trachyte, which extend in the plain towards Cerro de Hule, a mountain south of Tegucigalpa with an elevation of about 5,500 feet, with large basaltic dikes covering its surface. The soil in the immediate neighborhood of Tegucigalpa is, the greater portion, arid, and principally in the dry season, when the vegetation of the surrounding hills dies off, until the rains reappear.

The radiating power of the soil as regards light and heat, on account of the spare vegetation, is considerable, but largely counteracted by the morning and evening breezes that occur betwen 8 and 10 a. m. from the south and from 3 to 6 p. m. from the north.

The basin of Tegucigalpa contains two streams—the Rio Chiquito and the Rio Grande—which, during the month of January, have but a scanty supply of water, but which nevertheless refresh the surroundings. The temperature of the streams is about 70° F. at midday; in the morning, about 65°.

During the month of January, by the wise providence of nature, heavy night dews fall, which refresh the thirsty vegetation once more before entering into the hot season, which for the flora of the more or less arid tropics is the time of rest and of sleep, like the winter of the northern regions, with the only difference that cold is replaced by heat.

Without doubt the tropics of America present peculiar features in their meteorological conditions, which, by the same law of nature, have their effect upon their races, and it must not be a matter of wonder to encounter among them those peculiar contrasts which we see in their private and political life.

We reproduce a table representing the minimum and maximum temperature of Tegucigalpa during the month of January of the years 1888, 1889, 1890, and 1892. In perusing the table it will be noted that the lowest temperature during the month of January in four years reached down to 51° F., while the highest amounted to 83° F., making a difference of 32° F., while the average temperature amounts in the minimum to 60° and the maximum to 76°, making an average difference of 16° F. The hottest hours of the day are from 2 to 3 p. m., while the coldest usually occur between 2 and 3 a. m.

As a rule, strong northerly winds prevail, bringing with them some slight showers of rain, which usually occur in the evening or morning. The nights are clear and with the full moon present a sight such as can only be seen in the highlands of the tropics, the clearness of the atmosphere allowing the intense light of the firmament to illuminate the surface of this section.

Another interesting feature observed is that principally in those bright nights of January and February the dynamite discharges of the Rosario mine, about 18 miles from this place, at an altitude of over 3,000 feet above that of Tegucigalpa, are distinctly heard, and with greater facility than in the immediate neighborhood of the mine.

Table showing the temperature of Tegucigalpa during January for four years.

Day.	Minimum.				Maximum.			
	1888.	1889.	1890.	1892.	1888.	1889.	1890.	1892.
	Deg.	*Deg.*	*Deg.*	*Deg.*	*Deg.*	*Deg.*	*Deg.*	*Deg.*
1	56	53	63	55	78	77	73	76
2	54	65	61	59	77	78	72	73
3	54	62	60	59	75	77	74	75
4	54	58	63	60	76	77	74	76
5	56	64	60	64	76	77	76	76
6	57	55	60	60	77	72	75	75
7	58	62	59	59	76	74	76	77
8	61	60	58	60	79	79	73	76
9	63	52	60	62	77	79	75	77
10	64	61	62	63	76	79	74	75
11	63	59	59	60	74	79	73	74
12	64	59	60	59	73	79	75	78
13	62	60	62	67	76	80	79	81
14	62	77	64	63	75	80	80	81
15	63	68	62	60	74	79	77	82
16	63	62	64	62	73	72	78	79
17	58	51	59	60	76	81	81	82
18	60	61	60	61	75	81	82	80
19	60	57	61	62	74	79	83	82
20	59	56	64	60	73	75	80	83
21	60	65	59	59	75	79	81	82
22	61	53	60	63	75	77	79	80
23	62	62	63	73	76	79	78	80
24	60	66	68	67	74	78	79	83
25	60	56	64	63	75	80	81	82
26	59	56	63	62	77	82	82	79
27	63	68	61	64	77	83	79	80
28	60	59	63	63	78	76	82	79
29	57	52	59	60	76	70	80	82
30	60	60	60	58	77	78	81	81
31	62	64	62	59	76	76	82	82

The hottest and dryest season of the year is from about March 1 to May 10; at the latter date the "rainy season" usually begins. During the rainy season, in the interior, it rarely rains a whole day. The rains usually come in the afternoon or at night and continue from thirty minutes to two hours, after which the sky becomes clear.

The fact is, for an ideal climate, the interior of Honduras presents all that could be desired.

JAMES J. PETERSON,
Consul.

UNITED STATES CONSULATE,
Tegucigalpa, June 9, 1892.

HUDDERSFIELD EXPORTS TO THE UNITED STATES.

REPORT BY COMMERCIAL AGENT SMYTH.

Table showing the value of declared exports from the commercial agency of Huddersfield to the United States during the year ended March 31, 1892.

Articles.	Quarter ended—				Total.
	June 30, 1891.	September 30, 1891.	December 31, 1891.	March 31, 1892.	
Bricks and clay	$7,636.87	$11,456.13	$7,646.58	$319.48	$27,059.06
Cards and card clothing	9,371.47	13,187.27	7,712.24	3,123.47	33,394.45
Calf and goat hair, etc	2,327.44	1,687.58	2,412.42	454.32	6,881.76
Chemicals and dyes	25,825.28	25,478.15	26,046.44	21,265.02	98,614.89
China and glass bottles	....	....	59.53	180.60	240.13
Clocks	....	121.67	....	....	121.67
Collie dog	....	....	27.49	....	27.49
Cutlery	....	35.77	....	....	35.77
Corduroys and fustians	2,361.54	2,771.27	5,218.34	4,124.60	14,475.75
Cottons	5,273.86	3,660.16	4,294.15	4,055.57	17,283.74
Velvets and velveteens	....	....	1,928.94	3,382.12	5,311.06
Sewing	17,647.99	26,473.28	23,161.67	18,499.63	85,782.57
Grease and oil	....	29,657.84	13,214.16	14,328.28	57,200.28
Hessian	....	....	....	170.76	170.76
Iron ore	....	....	210.81	....	210.81
Jute:					
Yarn	....	12,102.94	2,629.16	2,657.35	17,389.45
Brussels	....	....	942.19	489.32	1,431.51
Leather	....	286.96	451.28	423.56	1,161.80
Linens and linen yarn	865.81	826.49	1,219.75	3,047.60	5,959.65
Linens and cotton	1,806.09	5,338.29	4,559.37	2,794.55	14,498.30
Linens, cotton, and silk	....	....	....	427.04	427.04
Mohair	....	101.72	22.84	46.59	171.15
Mohair and cotton	14,532.37	19,694.98	1,018.43	....	35,245.78
Mohair, silk, and cotton	....	65.03	....	....	65.03
Mohair, worsted, and cotton	....	150.78	....	....	150.78
Machinery	1,850.25	386.52	4,810.63	5,521.71	12,569.11
Needles	....	....	....	93.35	93.35
Rugs and shawls	3,691.23	2,952.97	163.26	....	6,807.46
Shoe cloths	....	....	97.47	46.89	144.36
Silk, satin, and silk yarn	13,802.79	7,280.35	9,123.75	10,022.19	40,229.08
Silk and cotton	21,687.74	10,973.37	582.13	....	33,243.24
Stationery	240.55	340.63	117.84	368.46	1,067.48
Stuffs	6,321.91	6,585.57	206.55	3,519.12	16,633.15
Wire	....	901.08	30.22	1,355.01	2,286.31
Wool	29,079.86	33,882.71	22,617.09	16,326.64	101,906.30
Woolen rags	....	....	....	2,512.48	2,512.48
Woolens	157,399.69	145,555.18	104,964.92	84,503.52	492,423.31
Wool and cotton	5,646.02	1,710.23	286.22	972.50	8,614.97
Wool and silk	....	....	300.84	84.11	384.95
Worsteds	388,407.23	434,209.23	456,700.52	628,096.56	1,907,413.54
Worsted and silk	2,414.93	2,314.14	1,988.23	1,885.70	8,603.00
Worsted and cotton	266.25	1,974.07	475.17	1,231.06	3,946.55
Worsted, cotton, and silk	1,653.91	5,230.07	812.76	1,981.27	9,678.01
Worsteds and woolens	997.49	574.78	663.26	573.17	2,808.70
Wines and whiskies	....	249.16	....	62.77	311.93
Warp fasteners	....	....	222.23	....	222.23
Total	721,108.57	808,216.37	706,938.88	838,946.37	3,075,210.19

The following table shows the decrease in the export trade for the year ended March 31, 1892:

Year ended March 31—	Total exports.	Worsteds.	Woolens.
1891	$4,003,514.81	$2,319,809.74	$533,223.08
1892	3,075,210.19	1,907,413.54	492,423.31
Decrease	928,304.62	412,396.20	40,799.77

WILLIAM P. SMYTH,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Huddersfield, May 15, 1892.

AUSTRIAN POSTAL SAVINGS BANK.*

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

The eighth annual statement of the imperial royal postal savings bank bureau for 1891 has just been published. It shows that the beneficial working of that institution is steadily gaining ground, and that its purpose of stimulating the sense of economy among juveniles and the laboring classes is more and more appreciated by them. The statement reports as follows:

Both the transactions of the savings department and the check department have again considerably increased, and the success of both the departments in 1891 surpasses that of any former year. In the savings department the number of depositors has increased by 64,510, numbering 847,716 at the end of the year, with deposits of 24,841,994 florins in cash and state bonds to the nominal value of 9,638,680 florins, or an increase, as compared with the preceding year, of 3,395,828 florins in cash and of 1,241,790 florins in bonds. Besides, there were bought for depositors and forwarded to them during the course of the year bonds to the nominal value of 2,365,000 florins. The far greater part of the depositors are persons of limited means; hence the amount of each single deposit is in general made up of only small sums, while, on the other hand, the continued increase in cash and bonds deposited shows the growing tendency of economy among that class of population. The check department numbers 19,301 depositors, being an increase of 1,583 against last year. At the end of the year the deposits were 37,490,170 florins in cash and the nominal value of 2,854,270 florins in bonds, being an increase, as compared with 1890, of 3,479,396 florins in cash and the nominal value of 456,430 florins in bonds. Even more worthy of notice than the increase of the balance due is that of the money transactions of the check department. In 1891 these transactions have surpassed the amount of 2,000,000,000 florins, experiencing an increase of almost 14 per cent as compared with 1890. Of these money transactions more than 620,000,000 florins (31 per cent) were settled by way of the clearing *Verkehr*, without the requirement of any cash transactions.

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*The details of many of the tables in this report do not harmonize with the totals, but it was considered best to print as given by the consul-general.

The financial result of 1891 corresponds with the increase of business transactions, yielding the net amount of 1,030,505 florins, against 865,058 florins in 1890.

SAVINGS DEPARTMENT.

The number of depositors in 1891 was 847,716; in 1890, 783,206; increase, 64,510.

The following statement shows the amount of transactions in 1891:

	Florins.
Deposits, inclusive of interest added to capital stock	23,315,393.92
Payments	19,919,565.06
Total of transactions	43,234,958.98
Amount of deposits at the close of 1891	24,841,994.63
Increase of deposits in 1891	3,395,828.86

The number of new depositors was as follows:

1891	144,947
1890	140,112
In the preceding years	1,167,517
Total	1,452,576

The following figures show the number of accounts liquidated:

1891	80,437
1890	76,337
In the preceding years	448,086
Total	604,860

Table showing the number of accounts newly entered and liquidated in 1891 according to the different crown lands.

Crown land.	Newly entered.	Liquidated.
Lower Austria	48,474	25,062
Upper Austria	5,047	2,908
Salzburg	1,636	910
Tyrol and Vorarlberg	6,361	4,100
Styria	7,091	4,217
Carinthia	2,480	1,317
Carniola	1,458	1,083
The coast lands (Istria, Göritz and Gradisca, and Trieste)	4,619	2,459
Dalmatia	1,204	637
Bohemia	29,663	17,195
Moravia	12,770	7,223
Silesia	3,826	2,164
Galicia	17,580	9,693
Bukowina	2,738	1,469
Total	144,947	80,437
Preceding years	1,307,629	524,423
Grand total	1,452,576	604,860

Table showing the number of accounts newly entered and liquidated in 1891 according to the different months of the year.

Month.	Newly entered.	Liquidated.	Increase.
January	19,008	6,749	12,259
February	14,306	6,442	7,864
March	12,028	8,114	3,914
April	12,159	7,522	4,637
May	10,530	7,700	2,890
June	11,470	6,555	4,915
July	11,833	6,292	5,541
August	11,058	6,209	4,849
September	10,265	6,021	4,244
October	10,746	6,046	4,700
November	10,519	6,059	4,460
December	10,025	6,728	4,297
Total	144,947	80,437	64,510

As in 1890, so the month of January in 1891 shows the highest number of depositors (19,008), while March shows the largest number (8,114) and September the smallest number (6,021) of liquidations. The increase of new depositors is the largest since 1884; and the percentage of liquidations in 1891 was 8.66 per cent, against 8.88 per cent in 1890.

Table showing the number of depositors in 1891 and 1890 according to crown lands.

Crown land.	1891.	1890.	Increase.
			Per cent.
Lower Austria	268,895	245,483	9.5
Upper Austria	29,279	27,140	7.8
Salzburg	8,893	8,167	8.9
Tyrol and Vorarlberg	33,624	31,363	7.2
Styria	39,768	36,894	7.8
Carinthia	12,560	11,397	10.2
Carniola	9,102	8,727	4.3
The coast lands (Istria, Göritz and Gradisca, and Trieste)	23,043	20,882	10.3
Dalmatia	6,093	5,532	10.2
Bohemia	203,946	191,473	6.4
Moravia	88,821	83,274	6.6
Silesia	24,933	23,271	7.1
Galicia	84,954	77,067	7.2
Bukowina	13,805	12,536	10.1
Total	847,716	783,206	8.2

Of every 1,000 inhabitants of the total population of Austria there were 36 depositors in 1891, against 34 in 1890.

Table showing the number of depositors to each 1,000 inhabitants of the total population in the different crown lands.

Crown land.	1891.	1890.
Lower Austria	101	96
Upper Austria	37	35
Salzburg	51	48
Tyrol and Vorarlberg	36	34
Styria	31	29
Carinthia	34	31
Carniola	18	18
The coast lands (Istria, Görtz and Gradisca, and Trieste)	33	30
Dalmatia	11	11
Bohemia	35	33
Moravia	39	37
Silesia	41	39
Galicia	13	12
Bukowina	21	20

Lower and Upper Austria, Salzburg, Moravia, and Silesia show a larger number of depositors than the other crown lands, while Dalmatia has the lowest average number of depositors.

Table showing the number of depositors according to age, sex, and ability to write.

Classification.	1891.		Preceding years.	
	New depositors.	Liquidations.	New depositors.	Liquidations.
Age.				
Up to 10 years	25,570	6,347	235,711	40,627
10 to 20 years	40,465	33,628	474,758	203,669
20 to 30 years	35,693	16,556	291,704	118,432
30 to 40 years	29,564	11,779	169,874	83,803
40 to 50 years	7,788	6,848	71,247	43,597
50 to 60 years	2,042	2,441	26,901	14,193
60 to 70 years	1,204	780	11,510	4,424
70 to 80 years	521	541	4,143	1,729
80 to 90 years	135	152	806	647
Over 90 years	13	11	48	32
Age unknown	83	77	1,227	348
Corporations, etc	1,869	1,277	19,700	12,922
Total	144,947	80,437	1,307,629	524,423
Sex.				
Males	90,343	52,130	843,925	362,785
Females	52,735	27,030	444,004	148,716
Corporations, etc	1,869	1,277	19,700	12,922
Total	144,947	80,437	1,307,629	524,423
Ability to write.				
Able to write	124,127	70,756	1,138,446	482,191
Not able to write	1,779	1,027	127,352	21,186
Unknown	17,172	7,377	22,231	8,124
Corporations, etc	1,869	1,277	19,700	12,922
Total	144,947	80,437	1,307,629	524,423

Table showing the number of depositors according to age, sex, and ability to write—Cont'd.

Classification.	Total.			Percentage of depositors on December 31, 1891.
	New depositors.	Liquidations.	Remaining.	
Age.				*Per cent.*
Up to 10 years	261,281	46,974	214,307	25.281
10 to 20 years	515,223	237,297	277,926	32.785
20 to 30 years	327,397	134,988	192,409	22.697
30 to 40 years	199,438	95,582	103,856	12.251
40 to 50 years	79,035	50,445	28,590	3.373
50 to 60 years	28,943	16,634	12,309	1.452
60 to 70 years	12,714	5,204	7,510	0.886
70 to 80 years	4,664	2,270	2,394	0.282
80 to 90 years	941	799	142	0.017
Over 90 years	61	43	18	0.002
Age unknown	1,310	425	885	0.104
Corporations, etc	21,569	14,199	7,370	0.87
Total	1,452,576	604,860	847,716	100
Sex.				
Males	934,268	414,915	519,353	61.265
Females	496,739	145,746	320,393	37.865
Corporations, etc	21,596	14,199	7,370	0.87
Total	1,452,576	604,860	847,716	100
Ability to write.				
Able to write	1,262,573	552,947	709,626	83.71
Not able to write	129,131	22,213	106,918	12.612
Unknown	39,309	15,501	23,808	2.808
Corporations, etc	21,569	14,199	7,370	0.87
Total	1,452,576	604,860	847,716	100

Table showing the number of depositors according to occupation.

Classification.	1891.		Preceding years.	
	New depositors.	Liquidations.	New depositors.	Liquidations.
Children	11,847	4,344	120,575	21,657
Students and school children	35,451	22,286	445,940	168,691
Private persons	14,684	10,948	95,405	43,649
Public officials	1,616	1,206	23,249	10,212
Other officials	3,488	2,551	40,207	17,708
Clergymen	596	361	7,213	2,923
Members of the army	3,652	2,113	28,737	12,539
Members of the police and customs	1,405	396	9,287	2,403
Scholars, teachers, and artists	3,135	1,408	26,817	10,852
Attorneys	345	175	3,769	2,927
Surgeons and apothecaries	570	332	5,758	4,690
Authors	70	98	2,541	1,914
Merchants	1,385	1,221	25,356	11,320
Manufacturers	373	222	7,884	5,574
Craftsmen	27,250	13,660	177,631	76,159
Merchants' clerks	4,646	2,219	36,007	19,512
Workmen in factories	2,450	1,269	22,289	42,522
Workwomen	3,858	1,198	20,684	8,736
Servants	14,912	6,525	97,549	35,089
Farmers	2,566	1,641	15,041	8,699

Table showing the number of depositors according to occupation—Continued.

Classification.	1891.		Preceding years.	
	New depositors.	Liquidations.	New depositors.	Liquidations.
Farmers' workmen	134	286	4,406	2,960
Day-laborers	1,751	864	8,029	4,146
Miners and foresters	661	235	5,535	1,974
Mariners	125	59	643	293
Corporations, etc	1,769	1,277	19,700	12,922
Occupation unknown	74	356	2,584	474
Convicts	11	15	82	57
Total	144,947	80,437	1,307,269	524,423

Classification.	Total.			Percentage of depositors on December 31, 1891.
	New depositors.	Liquidations.	Remaining.	
				Per cent.
Children	132,422	26,001	106,421	12.553
Students and school children	481,391	190,977	290,414	34.258
Private persons	110,089	54,597	55,492	3.545
Public officials	24,865	11,418	13,447	1.586
Other officials	43,695	20,259	23,436	2.764
Clergymen	7,809	3,284	4,525	0.533
Members of the army	32,389	14,652	17,737	2.092
Members of the police and customs	10,692	2,799	7,893	0.93
Scholars, teachers, and artists	29,952	12,280	17,672	2.084
Attorneys	4,114	3,102	1,012	0.119
Surgeons and apothecaries	6,328	5,022	1,306	0.154
Authors	2,611	2,012	599	0.07
Merchants	26,741	12,541	14,200	1.675
Manufacturers	8,257	5,796	2,461	0.29
Craftsmen	204,881	89,819	115,062	13.573
Merchants' clerks	40,653	21,731	18,922	2.232
Workmen in factories	24,739	13,791	10,948	1.291
Workwomen	24,542	9,934	14,608	1.723
Servants	112,461	41,614	70,847	8.357
Farmers	17,607	10,340	7,267	0.857
Farmers' workmen	4,540	3,246	1,294	0.152
Day-laborers	9,780	5,010	4,770	0.562
Miners and foresters	6,196	2,209	3,987	0.47
Mariners	768	352	416	0.049
Corporations, etc	21,469	14,199	7,270	0.87
Occupation unknown	2,658	830	1,828	0.215
Convicts	93	72	21	0.002
Total	1,452,576	604,860	847,716	100

In the above table the gratifying fact is shown that in 1891, as in the years preceding, people of limited means take a live interest in, and avail themselves largely of, the opportunity offered to them of laying by their small earnings with great facility and perfect safety. The beneficial influence of this institution in awakening and strengthening the sense of economy among that class of population which has but a very moderate income (a circumstance of high political importance) is made evident by the fact that in 1891 no less than 20,668, that is, more than 32 per cent of the total of new depositors in 1891, were children and students. Craftsmen, laborers, and tradespeople, too, to a great extent deposit their savings in the postal savings bank; and the number of servants who are thus laying by their pennies is increasing from year to year. Clubs, political bodies, corporations, and charitable institutions are depositors at the postal savings bank to the number of 6,771, against 6,124 in 1890.

Table showing the number of transactions.

Year.	Deposits.	Payments.
1891	1,351,643	469,290
1890	1,277,805	428,909
1889	1,224,310	388,145
1883-'88	1,818,952	1,790,512
Total	5,672,710	3,076,856

The amount of money deposited, inclusive of interest added to the capital stock, was:

	Florins.
1891	23,315,393.15
1890	21,597,857.09
1883-'89	98,518,278.43
Total	143,431,528.67

The year 1891 shows the highest amount of money deposited during any one year since the instituting of the postal savings bank.

Table showing the amount of transactions.

Year.	Deposits.			Payments.
	Amount.	Interest.	Total.	
	Florins.	*Florins.*	*Florins.*	*Florins.*
1891	22,780,376	595,018	23,315,394	19,929,565
1890	21,048,027	549,830	21,597,857	18,197,149
1889	18,195,056	460,119	18,655,175	15,715,911
1883-'88	78,446,960	1,416,133	79,863,103	64,756,908

The following table shows the number of first deposits and number of additional deposits in 1890 and 1891:

Year.	First deposits.		Additional deposits.	
	Number.	Per cent.	Number.	Per cent.
1891	144,947	10.7	1,206,696	89.3
1890	140,112	10.9	1,137,693	89.1

The average value of each deposit in 1891 was 16.81 florins; in 1890, 16.47 florins.

The number and amounts of the different deposits and payments in 1891 were as follows:

Description.	Number of deposits.	Number of payments.
50 kreutzers or less	247,581	7,350
50 kreutzers to 1 florin	225,105	27,469
1 to 5 florins	425,706	113,421
5 to 10 florins	160,995	82,683
10 to 20 florins	208,328	100,847
20 to 50 florins	94,324	54,668
50 to 100 florins	46,781	37,396
100 to 200 florins	22,229	23,300
200 to 300 florins	8,963	10,658
300 to 500 florins	6,469	6,881
500 to 1,000 florins	5,700	4,860

The following statement shows the details of the deposits:

	Florins.
Total amount of savings deposited in 1891	22,720,376.09
Total amount of deposits withdrawn in 1891	19,919,565.06
Balance	2,800,811.03
Interest added to capital stock	595,017.83
Total savings in 1891	3,395,828.86
Total deposits, inclusive of interest added to the capital stock, on December 31, 1890	21,446,165.77
Savings of 847,716 depositors on December 31, 1891	24,841,994.63

The average value of each deposit on December 31 for the past nine years was as follows:

Year.	Value.	Year.	Value.
	Florins.		*Florins.*
1891	29.30	1886	19.27
1890	27.16	1885	17.80
1889	24.89	1884	14.50
1888	22.88	1883	11.34
1887	21.27		

On December 31, 1891, the depositors had their savings deposited as follows:

Description.	Number.	Amount.
		Florins.
1 florin or less	243,711	189,967
1 to 3 florins	119,932	241,865
3 to 5 florins	47,755	191,322
5 to 10 florins	64,968	457,736
10 to 50 florins	135,096	3,552,981
50 to 100 florins	41,253	2,953,675
100 to 200 florins	28,284	3,857,263
200 to 500 florins	20,114	6,227,519
500 to 1,000 florins	8,109	5,657,045

The percentage of depositors was as follows:

Year.	Up to 5 florins.	5 to 100 florins.	More than 100 florins.
	Per cent.	*Per cent.*	*Per cent.*
1891	57.89	34.12	7.99
1890	57.18	35.24	7.58
1889	58.04	35.17	6.79
1888	59.6	34.5	5.9
1887	61	33.9	5.1
1886	60.7	34.6	4.7
1885	62	32.5	5.5

CHECK DEPARTMENT.

The number of depositors in the check department on December 31, 1891, was 19,391, which is an increase of 1,583.

The following statement shows the amount of transactions in 1891:

	Florins.
Deposits, inclusive of interest added to capital stock, in 1891	1,001,855,540.31
Deposits withdrawn in 1891	998,376,144.28
Total	2,000,231,684.59
Transactions in 1890	1,759,141,028.43

The number of new depositors was as follows:

1891	2,550
1890	2,694
Preceding years	19,848
Total	25,092

Of the 19,391 persons and business firms having check accounts at the postal savings banks on December 31, 1891, 19,173 were domiciled in Austria and 218 in Hungary and foreign countries, as is shown by the following table:

Country.	1891.	1890.
Austria	19,173	17,665
Hungary	139	80
Bosnia and Herzegovina	5	4
United States	1	1
Germany	61	44
England	2	2
France	1	1
Greece	1	1
Italy	1	2
Russia	....	1
Switzerland	6	6
Servia	1	1
Total	19,391	17,808

The depositors were distributed in 2,041 places (against 1,921 places on December 31, 1890), of which 1,947 places are located in Austria and 94 places in Hungary and foreign countries. The number of depositors in one and the same place is steadily increasing. The number of places in which there are at least 10 depositors has increased from 227 to 240 during 1891. On comparing the number of depositors in 1891 with that of 1890, Vienna shows an increase of 405, or 8 per cent; Prague, 130, or 9 per cent; Gratz, 38, or 15 per cent; Lintz, 21, or 10 per cent; and Trieste, 29, or 16 per cent.

The transactions, *i. e.*, moneys deposited, moneys paid out, and adding of interest to capital stock, were as follows:

Year.	Number.	Amount.
		Florins.
1891	8,691,259	2,000,231,684.59
1890	7,668,498	1,750,141,028.43
Preceding years	22,784,586	5,566,680,107.82
Total	39,144,343	9,326,052,820.84

In 1891 the transactions in Vienna represented the sum of 545,484,947 florins; Prague, 83,170,407 florins; Brunn, 30,002,918 florins; Trieste, 21,574,647 florins; Gratz, 20,481,443 florins; Lintz, 11,264,525 florins; Reichenberg, 10,517,575 florins; Pilsen, 10,422,449 florins.

The average number of daily transactions in 1891 was 23,812, and in 1890, 21,009.

The average number and value of transactions with each depositor were as follows:

Year.	Number.	Value.
		Florins.
1891	427	98,252
1890	409	93,870

The number and amount of deposits were:

Year.	Number.	Amount.
		Florins.
1891	6,902,740	1,001,448,400.31
1890	6,067,481	880,363,809.01

Hence the number of deposits in 1891 increased by 835,259, representing an increase of 121,084,591.30 florins as compared with the preceding year.

The average value of the deposits in 1891 was 145.08 florins, against 145.09 florins in 1890.

The average total number of deposits in favor of each depositor in 1891 was 339, representing 49,191.89 florins, against 323, representing 46,977.64 florins, in 1890.

In 1891 there were made 5,617,639 deposits (81.3 per cent, against 80.8 per cent in 1890) in sums up to 150 florins, 1,126,725 deposits (16.3 per cent, against 17 per cent in 1890) in sums up to 1,000 florins, and 160,579 deposits (2.4 per cent, against 2.2 per cent in 1890) in sums over 1,000 florins.

The following statement shows the details of the deposits:

	Florins.
Deposits in 1891	1,001,448,400.31
Withdrawals in 1891	998,376,144.28
Balance	3,072,256.03
Interest added to capital stock on December 31, 1891	407,140.00
Total balance	3,479,396.03
Balance on December 31, 1890	34,010,774.57
Total balance December 31, 1891	37,490,170.60
Average due to each depositor December 31, 1891	1,933.38
Average due to each depositor December 31, 1890	1,970.65

The number of depositors and the value of deposits on December 31, 1891, according to the sums deposited, were as follows:

Description.	Depositors.		Value of deposits.	
	Number.	Per cent.	Amount.	Per cent.
			Florins.	
100 to 150 florins	4,905	25.38	637,308	1.93
150 to 300 florins	3,489	18.05	951,165	2.88
300 to 500 florins	2,328	12.05	1,016,010	3.07
500 to 1,000 florins	2,826	14.64	2,714,826	8.21
1,000 to 2,000 florins	2,304	12.43	3,378,781	10.22
2,000 to 3,000 florins	1,048	5.42	2,553,946	7.72
3,000 to 4,000 florins	556	2.88	1,901,595	5.75
4,000 to 5,000 florins	390	2.02	1,728,068	5.22
5,000 to 10,000 florins	795	4.11	4,446,674	13.44
10,000 to 20,000 florins	394	2.04	5,395,436	16.31
20,000 to 30,000 florins	95	0.49	2,296,959	6.94
30,000 to 40,000 florins	40	0.21	1,367,037	4.13
40,000 to 50,000 florins	12	0.06	562,019	1.7
50,000 florins and over	43	0.22	4,126,614	12.48

Of the total of deposits 55.48 per cent (against 55.05 per cent in 1890) is of a smaller amount than 500 florins, 27.07 per cent (against 27.11 per cent in 1890) of from 500 to 2,000 florins, and 17.45 per cent (against 17.84 per cent in 1890) of more than 2,000 florins. Till December 31, 1891, there were 74,350 blank check forms delivered to depositors. For each form the legal tax of 2 kreutzers was paid to the Government, making the total sum of 172,201.62 florins, of which 35,052.80 florins were paid in 1891.

CLEARING DEPARTMENT.

This branch, too, shows an increase of 1,154 members, numbering on December 31, 1891, 13,354 members, making 69 per cent of the total number of depositors in the check department. On December 31, 1891, 13,189 (against 12,105 in 1890) members were residing in Austria, 110 (against 58 in 1890) in Hungary, and 55 (against 37 in 1890) in foreign countries.

The following table shows the number and amount of transactions:

Year.	Number.	Amount.
		Florins.
1891	1,320,682	620,283,848.68
1890	1,184,560	528,524,592.82
Preceding years	3,485,818	1,378,173,933.32
Total	5,991,060	2,526,982,374.82

The number and amount of items of booking to the credit or debit of the members were as follows:

Year.	Number.	Amount.
		Florins.
1891	660,341	310,141,924.34
1890	592,280	264,262,296.41
1889	507,495	216,683,155.51
1884-'88	1,235,414	472,403,811.15

The average value of each item booked to the credit or debit of the members of the clearing department was 469.67 florins in 1891, against 446.18 florins in 1890. The average number of items thus booked for each member was 48 in 1891, against 47 in 1890. The average amount booked to the credit or debit of each member was 22,500.14 florins in 1891, against 20,948.26 florins in 1890.

MISCELLANEOUS.

There were 2,357,339 receipts sent by letter mail to the postal savings bank in 1891, against 2,189,721 in 1890. There were 6,005,341 receipts forwarded by the postal savings bank in 1891, against 5,436,941 in 1890.

One hundred and seventeen new post-offices were opened in 1891 which were entrusted with the postal savings bank business. Seven post-offices were closed.

On December 31, 1891, there were 4,767 post-offices (against 4,657 in 1890) connected with the postal savings bank, making an average of 1 postal savings bank office for every 62.9 square kilometers or 5,000 inhabitants.

In 1891 the total income and expenses of the postal savings bank were as follows:

	Florins.
Income	1,914,900.40
Expenses	884,394.42
Net profit	1,030,505.98
Profit in 1890	856,058.47
Increase	174,447.51

For taxes, etc., the fiscal received 41,806.24 florins in 1891, against 37,440.52 florins in 1890.

Twenty per cent of the profit is to be added to the pension funds, the balance to the reserve funds of the postal savings bank and check department.

JULIUS GOLDSCHMIDT,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Vienna, May 28, 1892.

THE ORANGE FREE STATE.

REPORT BY CONSULAR AGENT LANDGRAF, OF BLOEMFONTEIN.

AGRICULTURE.

Since this country is specially adapted for agriculture, the soil being particularly fertile, great progress has been made for the last few years in this branch of industry. Proofs of this have been given in almost every district of the Orange Free State by the yearly successful and well-supplied "shows" held in the towns and villages of the different districts. The Government of the Orange Free State has greatly encouraged agriculture and voted money liberally for the support of these agricultural exhibitions.

During the last year, however, agriculture has been little less than a failure, owing to the many swarms of locusts that have overrun the country, not only devouring the crops of cultivated lands, but also attacking fruit-bearing trees. Nothing has yet been done to exterminate these insects; neither are there any means known of getting rid of them. On this account, grain will not only become very high in price, but will have to be imported to meet the demand.

The market price for wheat meal up to date is $8 per 200 pounds; maize, $4.50 to $6 per muid of 2.838 bushels; millet, from $4 to $5 per muid; chaff, from $1.12 to $2 per bale; oat hay, from $1.50 to $2 per 100 pounds; and potatoes, from $2.50 to $3 per 100 pounds.

COMMERCE.

On account of the increasing population through immigration, partly attracted by the discovery of minerals and partly on account of the salubrious climate (particularly suitable for consumptive invalids), the demand for foreign goods has been greater than any other year. Since this Republic does not own any manufactories, every manufactured article of whatever kind must be imported. Most of the trade up to the present is in the hands of the English and German nations, yet more than 50 per cent of the imported rough goods bears the American trade-mark.

It is on no account presumption to state that, if merchants of this country were enabled to import direct from the United States, most of the trade would then come into our hands. The circuitous route via England, as well as the double tax (of transshipment and commission charges in England and customs duty at the South African harbors), forms the only obstacle. Direct steamship communication would not only remove this obstacle, but would also effect a reduction in the prices of imported goods.

The following is a price-list of certain American articles as sold here:

Agricultural implements.—Plows, double furrow, from $42 to $52 each; plows, treble furrow or more, from $50 to $65; common plows, No. 75, with three shares, $10 each; churns (small ones), from $5 to $7 each; and harrows, from $12 to $24 each.

Household furniture.—Wardrobes, from $20 to $60; chest of drawers, from $17 to $25 (with or without mirrors); 4 to 8 feet tables (common), from $6 to $17; organs, from $85 to $225.

Building material.—Corrugated iron, from 18 cents to 20 cents per foot; wood, from 8 cents to 16 cents per foot.

Groceries.—Rice, from 8 to 10 cents per pound; sugar, from 8 to 16 cents per pound; candles, from 20 to 24 cents per pound; and paraffin, from $6 to $8 per case, or 12 gallons.

The total imports of the Orange Free State amount yearly to $10,000,000.

The total exports, which consist chiefly of wool, mohair, ostrich feathers, hides, horns, gold, and diamonds, amount yearly to $10,050,000.

COMMUNICATION.

The first line of railroad has now been completed in the Orange Free State at a cost of $13,140,900. It connects Cape Colony in the south and the Transvaal (South African Republic) in the north by direct communication, covering a distance of 334½ miles within the Orange Free State between both the extreme points.

Another line running from the colony of Natal to Harrismith, a town situated in the northeast of the Orange Free State, was opened on July 13, 1892.

All other communication is by means of coaches, carts, etc. To places where there is no railroad goods are transported by bullock wagons. The rate of freight by rail (according to the class of goods) is from 4 to 11 cents per ton per mile; by bullock wagon, from 8 to 12 cents per ton per mile.

Telegraphic communication exists all over the state.

FINANCE.

The revenue of the Orange Free State amounts yearly to about $1,500,000, and the expenditure to about $1,250,000. Banks are established in nearly every town.

LABOR.

All heavy labor is mostly performed by Kaffirs, who receive from 48 to 80 cents per diem. Their working hours are from 6 a. m. to 6 p. m. in summer and from 7 a. m. to 5 p. m. in winter. The Kaffirs subsist principally on Indian corn.

Tradesmen earn from $4 to $6 per diem. It may be remarked that all handicraft is in the hands of white people.

MINING.

Diamonds.—Several new mines have lately been opened, and are found to contain diamonds of good quality. It is universally known that diamond mines exist all over the southern part of the Orange Free State, but are not prospected for, due either to the absence of capitalists or speculators. The Dutch population of this country (and the largest landowners) lack the enterprising energy for discoveries. At present the attention of foreign capitalists is mostly drawn to the interior of Africa, namely, Mashonaland, and unless mines are discovered by chance they will not be prospected for. The output of Jagersfontein (the first diamond mine discovered in this state) for the month of June was 15,576½ carats, valued at $120,000.

Coal.—A rich vein of coal was recently discovered near Vereeniging, a village on the border near the Vaal River. This vein has been found to be 290 feet deep. Several coal mines have been opened during the last six months. Coal is sold here at $15 per ton.

Gold.—Reef gold has been found near Lindegesfontein, a village in the northern part of the Orange Free State, but, owing to the want of capital, the mine has been more or less abandoned.

PUBLIC WORKS.

Several imposing buildings have been erected, of which may be mentioned the Parliament house, at a cost of $200,000; post-office, $60,000; several schools, $100,000; and bridges, $150,000.

TECHNICAL AND INDUSTRIAL EDUCATION.

The Orange Free State Government has been petitioned to erect a technical and industrial educational institution, but it has been decided by the Volksraad (congress) to postpone the matter.

E. R. LANDGRAF,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Bloemfontein, July 22, 1892.

COAL IN SONORA.

REPORT BY CONSUL SMITH, OF NOGALES.

The coal fields commence near San Marcial, about 75 miles northeast of Guaymas, extending east 90 miles or so to Trinidad.

From Ortiz station, on the railroad, to the commencement of the coal belt the distance is probably about 40 miles, but the proper outlet for this coal would be a road direct from Guaymas.

In an investigation and report upon coal in Sonora, made by me in October, 1890, I found that between the parallels 32° and 34° coal is found at the above-named place; again near Fronteras, Sonora; again in the Chiricahua Mountains, in Arizona, about 40 miles east of Willcox, on the Southern Pacific Railroad; again northwest from Willcox about 70 miles, on the San Carlos Indian reservation; again further north, near Fort Apache; again further north, at Evanston, Wyo.; and again further north, in the State of Montana. From this it would seem there is a coal belt extending north from San Marcial, Sonora, between these two parallels, thousands of miles. The Sonora coal fields have been prospected some with the diamond drill, but no mines have been opened up.

On account of their close proximity to the navigable waters of the Pacific, they are valuable, and with proper management they could be made to pay handsomely.

DELOS H. SMITH,
Consul.

UNITED STATES CONSULATE,
Nogales, June 13, 1892.

TREES IN FRENCH CITIES.

REPORT BY CONSUL KNOWLES, OF BORDEAUX.

One of the chief beauties of the larger French cities and second only to their magnificent edifices and monuments are the trees.

The almost interminable vistas of chestnuts and acacias stretching along the broad and superbly paved avenues as far as the eye can reach, their bending branches almost touching one another in one endless arch of verdure, form not only a delightful perspective for the eye of resident and visitor alike, but serve to add beauty to cities already beautiful and grace and symmetry to whatever might be harsh and forbidding.

It must not be presumed, however, that the existence of this veritable *rus in urbe* is the result of nature's handiwork alone, for science and art have each in turn lent their aid in converting these great centers into tremendous forest gardens.

In short, the planting as well as the maintenance of the trees in French cities is an item of no little import in the annual budget prepared by the municipal council. Nor does this body look upon their preservation as a matter of less consequence than the repairing of its roadways or the lighting of its streets.

The climate and soil of France are not suited to the nurture and growth of every sort of tree, so that those chosen to line the avenues and boulevards of her cities must be selected with no little judgment.

Chestnuts thrive wondrously. They grow well on a not too rich or generous soil, but require at the same time frequent watering at the roots. The elm is also a favorite tree with the professional landscape gardeners, though they are, unfortunately, extremely susceptible to the destructive work of worms and insects. Maples grow slowly, but they are hardy and strong in the end. Add to these the acacia, the linden, the sycamore, the oak, and the buttonwood, and the list of trees that live and thrive to advantage in the great continental cities approaches completion.

France imports a great many of her fruit, as well as shade, trees, and the utmost precaution is taken as to where these shall be planted. Handfuls of earth from each and every spot where a tree is to be placed are carefully examined and analyzed. Upon ground rich and moist the trees from the United States grow best. A sandy soil is most favorable to resinous trunks, and so on in proportion to the teachings of science and arboriculture.

In squares and parks, though more especially along the principal thoroughfares, where the trees are planted about 20 feet apart, particular attention is given to the replacing of the dead or dying by healthy trees of the same species. In this way the line of perspective is never broken, nor is the vision repelled by the absence of a single trunk.

It would seem that a great many American cities, with their tremendous expanse of stone, brick, and iron façades, might profit in the provision of shade and verdure by the example set by the cities of France. Sidewalk locomotion would be facilitated in the summer months by equal protection from the sun's rays on both sides of the street, while grace combined with genuine utility would serve to make the avenues as attractive, perhaps, as some of them are now forbidding.

An excellent reason may be ascribed for the excessive care which the French bestow upon their arteries of metropolitan traffic. The nation, as a whole, spends (whenever temperature and the elements permit) the best part of its leisure time in the open air. Home life, in the true Anglo-Saxon acceptation of the term, is something that has, in this land of sunshine and outdoor pleasure, an existence in name only. The Frenchman looks upon the streets of his native city and the adornment of the same much as an American does upon the decoration of his domicile. Hence the attraction of the former and the indifference sometimes displayed in the artistic arrangement of the latter.

Charles Kingsley, the great essayist, if I mistake not, is authority for the statement that verdure is just as essential to life as air itself, and that the kitchen garden of the laborer goes as much to add a touch of sunshine to his moral being as a bunch of roses to an invalid or the Royal Park to the Queen of England. The proof of the theory, which is a truer one than may at first appear, is in the witnessing of the crowds of poor that flock in summer time to any spot where grass and foliage exist. The French know this. They plant trees and lay out flower beds in every available corner within their cities' boundaries, while the benefit wrought thereby is too self-evident to demand interpretation.

HORACE G. KNOWLES,
Consul.

UNITED STATES CONSULATE,
Bordeaux, May 12, 1892.

RAINFALL IN URUGUAY.

REPORT BY CONSUL HILL, OF MONTEVIDEO.

I have the honor to inclose a record of rainfall during ten years at Prange's Estancia Company, near Nueva Alemania, Uruguay, in longitude 58° 21′ west from Greenwich. It will be noted that the rainfall seems to be greatest in January and December, and that February is the driest month. I hear it said that in former years the season of heaviest rainfall was from July to September—midwinter here. If this be so, the climate would appear to be changing. Considerable interest has been aroused here in meteorological matters. The chief of the bureau has now forty-five pluviometers placed at various stations throughout the country.

Table showing quantity of rainfall at Concordia estancia from 1882 to 1891.

Month.	1882.	1883.	1884.	1885.	1886.	1887.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
January	7.93	4.91	4.54	3.31	3.05	5.93
February	1.86	0.31	0.5	3.23	2.8	1.09
March	0.82	13.67	6.77	3.59	2.16	0.87
April	4.25	2.18	10.98	2.68	4.48	1.52
May	1.05	6.05	0.02	5.13	2.55	....
June	2.8	4.64	4.08	0.11	1.83	4.36
July	1.8	5.36	0.29	5.01	0.16	3.98
August	8.85	1.34	1.14	3.97	....	4.21
September	1.76	7.63	8.26	2.78	6.89	4.95
October	3.73	2.42	3.1	6.78	2.62	1.8
November	7.82	3.81	3.42	4.67	1.81	1.53
December	4.1	3.11	3.61	11.44	3.49	4.96
Total	46.77	55.43	46.71	52.7	31.84	35.2

Month.	1888.	1889.	1890.	1891.	Total.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*
January	0.67	13.11	4.76	4.49	52.7
February	1.64	4.8	3.47	3.38	23.08
March	2.77	6.82	9.74	3.45	50.66
April	3.53	8.76	2.66	3.94	44.98
May	0.42	5.81	1.05	5.35	27.43
June	0.68	3.48	0.96	4.07	27.01
July	3.05	3.84	1.8	10.61	35.9
August	6.39	4.37	4.08	4.89	39.24
September	7.96	0.42	0.86	0.75	42.26
October	2.12	2.14	3.5	4.08	32.29
November	5.74	2.82	1.34	2.47	35.43
December	7.26	8.88	3.83	1.18	51.86
Total	42.23	65.25	38.05	48.66	462.84

FRANK D. HILL,
Consul.

UNITED STATES CONSULATE,
Montevideo, May 12, 1892.

MEXICAN ORANGES FOR THE UNITED STATES.

REPORT BY CONSUL SMITH, OF NOGALES.

I have the honor to inclose herewith a report of oranges passing this consulate during the season of 1891–'92, showing number of boxes, value, and points in the United States to which they were shipped.

Altogether there were 75 carloads shipped during the season to points as follows: Denver, 24; St. Joseph, 19; Los Angeles, 8; Nogales, 6; Burlington, 5; Albuquerque, San Francisco, and Minneapolis, 3 each; Kansas City, 2; and Sioux City and Salina, 1 each. A peculiar feature of these shipments is that 8 carloads went to Los Angeles, where oranges are produced to so large an extent; also, 3 carloads to San Francisco, making 11 carloads to a State where the orange is the principal crop.

The increase this year over that of last was 3,598 boxes, nearly 17¾ per cent, and the price averaged about 10 cents per box higher than last year.

This industry is increasing in importance in Sonora, and I am told that the crop for next season has already been contracted for by dealers in the United States.

Table showing the quantity and value of oranges exported to the United States from Mexico from November 21, 1891, to April 30, 1892.

Whither exported.	Boxes.	Value.	
		In Mexican money.	In United States money.
Albuquerque, N. Mex.	1,093	$2,098	$1,756.03
Burlington, Iowa	1,671	3,272	2,736.99
Denver, Colo.	7,543	15,060	12,605.22
Kansas City, Mo.	857	1,600	1,339.20
Los Angeles, Cal.	2,627	5,254	4,397.60
Minneapolis, Minn	1,028	2,042	1,709.15
Nogales, Ariz.	817	1,525	1,276.42
Salina, Kans.	378	730	611.01
San Francisco, Cal.	1,021	2,365	1,979.50
Sioux City, Iowa	512	1,024	857.09
St. Joseph, Mo.	6,394	12,613	10,557.08
Total	23,941	47,583	39,825.29

Mexican money is changed to United States money at 83.7 cents to the dollar.

In addition to the above, the value of boxes and barrels was $5,199.50 in Mexican money, or $4,351.98 in United States money.

DELOS H. SMITH,
Consul.

UNITED STATES CONSULATE,
Nogales, May 17, 1892.

IMPORTS AND EXPORTS OF URUGUAY.

REPORT BY CONSUL HILL, OF MONTEVIDEO.

Table showing the imports of Uruguay for the first three months of 1892.

Articles.	Value.	Articles.	Value.
Liquors, etc.	$747,750.33	Machinery, etc.	$1,077,961.32
Comestibles, etc.	1,029,765.17	Miscellaneous	576,718.65
Tobacco, etc.	95,020.44	Cattle on the hoof	39,990.20
Dry goods, etc.	884,225.23	Total	4,796,936.86
Ready-made clothing, etc.	345,505.52		

Table showing the exports from Uruguay for the first three months of 1892.

Articles.	Value.	Articles.	Value.
Animals on the hoof	$253,472.50	Provisions for ships	$37,046.75
Saladero and cattle products	7,976,172.04	Total	8,398,302.03
Agricultural products	68,749.81		
Miscellaneous	62,860.93		

FRANK D. HILL,
Consul.

UNITED STATES CONSULATE,
Montevideo, May 12, 1892.

AGRICULTURAL IMPLEMENTS IN SPAIN.

REPORT BY CONSUL TURNER, OF CADIZ.

I have the honor to report to the Department, in answer to a letter received from a New York agency for some of the leading manufacturers of agricultural machines and implements in the United States, the full assurance that, if urged by a man who understands the methods that obtain in introducing the use of new machinery in the Western States, the following implements will be easily introduced into this market, viz: Plows, cultivators, harrows, hand drills, seeders, fanning mills, feed-cutters, spraying apparatus for orchards and vineyards, horse-tread powers and windmills of all styles, dogcarts, wagons, carriages, and buggies.

The laws for the collection of debts are all in favor of the creditor, and, as a rule, the Spanish dealer has a high sense of honor and is perfectly safe. Notes can always be discounted at 4 or 5 per cent in the local banks.

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, July 12, 1892.

ANTIGUA TRADE TAX.

REPORT BY VICE-CONSUL GALBRAITH.

I have the honor to inform the Department that when the trade tax* was passed by the government here, I was informed by the governor, Sir William Haynes Smith, that the provisions of the act would be enforced against all goods imported into the colony. At first this was carried out in a very indifferent manner; lately, however, the custom-house authorities have ceased to charge it on all goods imported through the parcel post. As most of the goods imported in this manner come from the United Kingdom, its effect is a discrimination in favor of packages of English goods.

I have drawn the attention of the authorities to this matter, and am told that goods imported in like manner from the United States will also be admitted without paying the tax. The imports from the United States through the parcel post are very trifling; and I am of opinion that the tax ought to be enforced without exception, as was the intention when the act was passed.

SAMUEL GALBRAITH,
Vice-Consul.

UNITED STATES CONSULATE,
Antigua, July 26, 1892.

Ficus elastica of Nicaragua.—Mr. J. Crawford, of Leon, Nicaragua, from whom an interesting contribution, entitled "India-Rubber Producing Vines and Trees in Nicaragua," was published in the SPECIAL CONSULAR REPORTS on India rubber, in a communication to the Department under date of May 20, 1892, writes as follows:

> I omitted, intentionally, because so very slow a grower, one good kind of rubber-yielding trees, indigenous to Nicaragua, called here the "*Matapala*," and similar to the *Ficus elastica*, which the English have chosen as preferable and are planting and cultivating in Ceylon. There are species in Central and South America, however, which, on and after the fifth or sixth year, attain vigor and size enough to yield a large annual or biennial flow of the elastic (containing milk-like juice) without exhaustion. They soon recover from the deprivation, while the *Ficus elastica*, or aërial-rooted tree, requires fourteen to twenty years before it has size and strength enough to yield India rubber in profitable quantities and then recover from the bleeding or milking. The *Matapala* tree has a high, extensive, thick foliage, and grows into, and often through, its own trunk or trunks. I have counted over forty-two tree trunks, from 6 to 30 inches in diameter each and from 20 to 60 feet high each from the ground to the branches, with foliage all interconnected in vital functions, as well as in body, with each other and forming one tree.

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* Twenty-four cents per 5 feet, cubic measurement, on all imports.

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 145.—OCTOBER, 1892.

ASPHALT OF TRINIDAD.

REPORT BY CONSUL PIERCE.

In compliance with Department dispatch, instructing me to make a full and exhaustive report on the subject of asphalt in Trinidad, covering the supply, manner of taking and handling, the exportation, and the laws and regulations applicable thereto, and inclosing a letter addressed to the Department, in which it is suggested that I make a "complete history," I have the honor to submit the following report:

The only asphalt known to the market as Trinidad asphalt is deposited in and near the small village of La Brea, in the southwestern part of the island of Trinidad, about 45 miles south of Port-of-Spain, in the Gulf of Paria. There are other well-known deposits of asphalt in the island, but these are not now being worked, and are only referred to herein incidentally. Neither this kind, asphaltic oil, nor another kind ("glance"—more valuable than any other) is found in the lake or abutting lands.

Although hundreds of thousands of tons of asphalt (or pitch, "la brea" being Spanish for "the pitch") have been shipped from La Brea and vicinity, there are very few conveniences for shipping—none worth speaking of, except a pier, to which ocean vessels can not come, erected by the Trinidad Asphalt Company, where crude asphalt may be dumped from wheelbarrows on to flats, to be carried out to the transporting vessel. The crude asphalt from the land and part of it from the lake is carried in baskets or tubs from the shore to lighters, which are usually 20 feet or more from the dry land, the carriers employed walking a gangway. The *épurée* (boiled pitch), exported exclusively by the Trinidad Asphalt Company, is loaded from shore to flats with skids.

In addition, there is no harbor at La Brea, only an open roadstead, and vessels are frequently inconvenienced in loading by the boisterousness of the sea, owing to which considerable asphalt is lost through mishaps before it is placed on board the vessel. Probably the greater part of the crude asphalt, on being carted to the seashore, is dumped there to await the arrival of the transporting vessel, though much of it is conveyed from the excavation to the transporting vessel without this delay.

It is well to observe here that steamboats (carrying passengers and cargo) pass La Brea on Wednesdays and Fridays, and passengers getting off there at low tide are rowed near to the shore in small boats and carried the remaining distance in the arms or on the backs of muscular men.

It is quite a difficult matter to say what the market price of asphalt is at this port, because it is subject to so many anomalous conditions. The original cost to the Government or to the owners of the lands prior to the asphalt rage was substantially nothing, and the cost to those who have since purchased lands varies.

In respect to present dealers, very little, if any, pitch is sold in isolated quantities. The usual contract is for the owner or lessee of the land to deliver so much pitch at a certain price annually for a term of years. I should judge that those dealers who have contracted for La Brea land pitch within the last six months have had to pay somewhat more than the lake pitch is sold for to shippers to Europe, to wit, 28*s.* 6*d.*, or $6.84 in local money, free on board.

The following itemized estimate per ton in respect to land asphalt is believed to be a fair approximation:

Price of pitch in the ground	$4.00
Digging, overlooking, and cleaning	.50
Carting	.40
Loading lighters and loading ship	.30
Lighterage from shore to ship	.50
Contractor's profits, mercantile commission, and all other expenses and losses	1.10
Export duty	1.20
Freight and insurance to New York	2.25
Total	10.25

When large quantities of asphalt are being handled or other favorable conditions intervene, this total could, of course, be reduced. It is a matter of public record, for instance, that the first cost of the asphalt taken from the pitch lake by the Trinidad Asphalt Company is only 40 cents per ton, and it can be dug more readily than the land asphalt.

I have heard it claimed that all the asphalt at La Brea is substantially one deposit, and that applying the designation of "lake" to only a portion of it is incorrect; but the only part that can be said to be like a lake is alone called the lake by the community, and I shall therefore in this report designate a certain portion as lake asphalt or pitch and the other portion as land asphalt or pitch, and both under the general name of La Brea asphalt or pitch.

The village is on an extreme point called La Brea Point; another extreme point to the east is called Point d'Or. The lake is further inland, being southwest of these two points and about a mile from them, and about two-thirds of the way from Point d'Or to the opposite side of the peninsula. The lake has an elevation of 138½ feet, according to Wall and Sawkins, above high water, and on three sides the land slopes from it. It is circular in form, and covers, according to a Government survey in 1886, 109 acres 9 perches, and it is believed to contain several million tons of asphalt. The geological report of Wall and Sawkins puts the maximum amount which can be expected to exist at 4,752,000 tons. Since this estimate several hundred thousand tons have been removed. The report mentions that the term "inexhaustible," applied to the lake, "has probably arisen from the circumstance of artificial cavities rapidly closing up, which may have led to the supposition of the substance being reproduced or generated as fast as removed; but it is essential to remember that every pound abstracted diminishes the remaining quantity by that amount." I believe from the information I have obtained that the contents of the lake have decreased in volume within the last decade, indicating that the "supply," if it has one, is not equal to the drainage that is now being made from it.

Persons who have seen a large round pond, substantially dried up, with little strips of clear water irregularly intersecting its bed, here and there patches of vegetation, and a slushy looking place near the center with fish bubbles coming up, the entire bed blackish and uninviting, can form a very fair idea of the general appearance of this famous lake. An odor described to be like that of sulphureted hydrogen gas is emitted at the sloppy looking place called the "place of supply," where many gaseous bubbles appear. In passing over the lake one will see more or less of these little bubbles, and if he stoops down and catches the odor from them he will find it the same as the odor at "the place of supply" near the center. There are also over the lake more or less little swellings of different shapes and sizes, and I am told that the smaller of them (say an inch square) contain only gas and that some of the larger ones (say a foot square) contain both gas and decayed vegetation.

There are a large number (say two or three dozen) land islands over the lake which would probably aggregate about 3 or 4 acres. They are covered with vegetation, and some of them support trees 20 or 30 feet high; but I am told these islands do not come up from the bottom of the lake nor do they bear down any considerable distance into the lake. Mr. J. W. McCarthy, the local manager of the Trinidad Asphalt Company, informed me that he destroyed one of them and the pitch under it rose to its own level, or the general level of the lake. A horse may be ridden on the lake and up to the "place of supply," and, under particularly favorable conditions, I am inclined to think he might be ridden through it. It is difficult to give a very satisfactory description of this particular spot, and no two descriptions of it can be exactly alike, for it is never identically the same on any two occasions. In an open space, say 50 acres or more, in which there is no vegetation whatever, may be seen a zigzag, irregularly outlined spot, which undergoes constant change in shape and size (when I was there last and took a good look at it, it was bow-shaped and approximated an acre in size). It differs from the surrounding pitch in outward appearance, as freshly molded or bright lead would differ from lead of a duller and darker hue. All of this fresher-looking pitch is softer than the pitch surrounding it; but on some of it, at the more distant edges, one may walk without sinking below the heel of his shoe, and I apprehend from appearances, and was so told, that it is only a matter of time for the outer parts to become indistinguishable from the body of the surrounding pitch. Within this particular area is located what is called "the place of supply," which is one or more spots where the pitch is always softer and where, in the hotter part of the day, the pitch, or rather the water surrounding the pitch, fairly boils. These soft parts constantly shift their position, and their fomentations undergo great change, seemingly regulated by the heat of the sun. I am assured by witnesses, whose word I can not call in question, that they have seen the "place of supply" when a person could not have walked into it, both on account of the intense heat and the probability of being engulfed. I have never seen it present so terrible an aspect. On one afternoon, when it was probably in about its usual state, in the hottest part of the day, I saw a man walk into it with impunity, and it only came up to the calves of his legs. He picked up a handful of the pitch and handed it to me. It was as pliable as soft putty, and I manipulated it without any of it sticking to my hands; but the water which oozed from it somewhat discolored my hands, and I was told that if I had continued the manipulation longer, till all the water oozed out, the pitch would have become sticky. Early one morning (8 or 9 o'clock) I visited the "place of supply," and the man I had with me walked all over the softest spot without sinking deeper than his foot. At that time two carts containing barrels were being loaded with the "liquid pitch," and the process was to dig and pull it up with picks in lumps, which were put by hand into the barrels. I was told that in the hot part of the day the pick was dispensed with and the shovel used instead.

One of the cartmen pointed to a particular place, a foot or two square, where he said he had been digging that morning and which had filled up. The man with me stepped into this place and gradually sank nearly to his knees, but sank no further. I also noticed that this pitch, unlike that on the previous occasion referred to, stuck with considerable tenacity to the man's legs.

The little channels of water referred to constitute quite a relief to the view. These are quite clear and pretty. They vary in width; but, unless unduly swollen by rainy weather, they may be roughly estimated at 2 to 6 feet wide and, say, 1 foot to 2 feet deep, though in places the water is much wider and deeper. By these deposits of rain water the lake is divided into a great many irregular divisions. Several persons told me that it was their understanding that these little channels rose and fell with the tide, which seems unreasonable; but, as the opinion is entertained by some of the residents of the neighborhood, I submit it. The pitch comes boldly up to the water, but rarely, if ever, slopes gradually into it; but at the water's edge it is inclined to curve down abruptly, and under the water it does not promptly adhere to the pitch on the adjoining area.

It is understood that the pitch is in constant motion, and the theory has been advanced that each of these irregular divisions has a motion of its own. It would seem, from the appearances, that the water and the outer part of the pitch of the adjoining division have a very repelling effect on the advancing pitch, or else these several divisions of pitch do turn under and revolve respectively within themselves. But evidently the pitch yields in a marked degree to the influences of water. I noticed a little spot of water about 6 feet wide, which was probably 3 feet deep—a depression which, if not originally caused by the settlement of water on the spot, is kept in existence by the water. In other words, the pitch would doubtless find its own level were it not for the water. I am strongly inclined to think that the "place of supply" described above, if not the source of supply or generation, is a source of general motion, the degree of motion lessening as it recedes from this center. The fact that there is a large area next around the "place of supply" on which no vegetation grows, and that (in addition to the well-defined land islands) more or less vegetation is found as you approach the border, seems to indicate that the motion near the "place of supply" is too great for sufficient earth to accumulate on the surface to support vegetation.

ASPHALTIC DEPOSITS IN GENERAL.

I beg to observe that the only work on the geology of Trinidad is that of Wall and Sawkins, published in 1860 "by order of the lords commissioners of Her Majesty's treasury." The work divides its comments on Trinidad asphaltum into three parts, one giving a general description, the others relating to its economic capabilities and to "asphaltum more or less mixed with woody matter." The last two will be quoted further on in this report, but at this point, barring the illustrations, I quote the descriptive part in full:

GENERAL DESCRIPTION.

In the treatment of this subject the following divisions will be introduced:

(1) General diffusion of asphaltic and bituminous substances.
(2) Principal distinctions in the forms of occurrence.
(3) Special phenomena exhibited by the Trinidad asphaltum.
(4) Derivation and genesis of the latter.

The first two sections are not essential to the descriptions of the local circumstances to be enumerated, but, forming a species of introduction to the subject, they will serve to invest it with a character of generality, augmenting the interests without diminishing the efficiency of the succeeding considerations.

I.—GENERAL DIFFUSION.

All the asphaltic substances have been usually regarded as of local and limited occurrence; they are in reality, however, widely disseminated, especially in the tropical and subtropical regions, which evidently indicates that they are due to extensively operating natural causes, and not, as usually supposed, to the accidental combination of special agencies.

A detail of the localities where these substances are especially abundant may further enforce the above views.

Commencing with the adjacent mainland, we have the authority of Codazzi,* who says: "There are inexhaustible deposits (*minas*) of mineral pitch in the provinces of Merida and Coro, and above all, in that of Maracaibo; in the latter it is employed for calking the ships which navigate the lakes.

"Springs of petroleum are abundant in Trujello and Cumana" (Gulf of Cariaco).

The latter are also mentioned in detail by Humboldt (Travels). The soil of the vicinity of Maturin, on the Guarapiche, is stated to be impregnated with bitumen, and an island in the mouth of that river, which flows into the Gulf of Paria, is termed Isla de la Brea.

Respecting the existence of the substance in the Antilles, Mr. Cowling Taylor observes:† "In fact, the entire chain of the West India and Windward islands presents similar phenomena of petroleum springs, beds or veins of asphaltum, and accumulations of mineral pitch, and traces of metamorphic and volcanic rocks in great abundance."

In support of the above he enumerates especially Barbados (p. 249), where "compact bitumen or asphalt abounds," "a green mineral naphtha," "and the calcareous rocks are frequently impregnated with bitumen."

In Cuba asphalt, or chapapote, is very extensively diffused, and is often termed bituminous coal, but is in reality a bitumen, as shown by the accompanying analysis:‡

	Per cent.
Carbon	34.97
Volatile matter	63
Ashes or cinders	2.03
Total	100

The specific gravity is 1.142 to 1.197.

The same author, who visited several of the deposits, says the asphalt occurs in the form of wedge-shaped veins, "in a region of metamorphic and magnesian rocks, of which the most prevalent are serpentines, diorites, euphotides." Some of the masses of chapapote are of great magnitude.

"Petroleum leaks out in some, indeed in numberless, places in this delightful island from amidst the fissures of serpentine, and perhaps has deeply seated sources." (P. 246.)

New Grenada.—Bitumen prevails along the margin of the Magdalena Valley (op. cit., p. 231).

Peru.—Asphaltum of typical purity occurs at Coxitambo. Analyzed by Boussingault with the following results: Carbon, 75 per cent; hydrogen, 9.5 per cent; oxygen, 15.5 per cent; residuum, 0.16 per cent; specific gravity, 1.080; fracture eminently conchoidal, possessing a high degree of luster. (P. 232.)

Mexico.—"In the interior of Mexico are lakes of fresh water, where the chapapote is found bubbling up to the surface. It has a pungent smell, like that of liquid asphaltum, and possesses some of its qualities." (P. 222.)

Texas.—"An announcement has been made of the existence within 100 miles of Houston of a small lake that closely resembles the pitch lake of Trinidad. It is filled with bitumen, or asphaltum, and is about a quarter of a mile in circumference. In the summer months a spring occurs near the center of the lake from which an oily liquid (probably petroleum) continually boils up from the bottom. This liquid gradually hardens on exposure to the air, and forms a black, pitchy substance similar to that which forms the sides of the lake. It is said to resemble precisely the bitumen of Trinidad." (P. 223.)

France.—At Labsann, near Strasburg, there is lignite, bituminous sandstone, and asphaltic limestone. Bituminous limestones also occur at—

Moys (La Limigne), 22 per cent of asphalt; Puy de la Bourière, 19 to 21 per cent of asphalt; Puy de la Sède, 14 to 16 per cent of asphalt; and Seyssel, department of Ain, 10 per cent of asphalt. Other localities are: Aniches (department du Nord), asphalt and bitumen; Les Landes, bituminous sands; and petroleum springs at Bieriers (department of Hérault) and Clermont (Puy-de-Dôme). (P. 463.)

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* Geografia fisica de Venezuela, 154.

† Taylor, statistics, p. 244.

‡ Statistics of coal, 247.

Portugal.—A mine of asphalt of good quality has been discovered in the neighborhood of Alcobaca. (P. 561.)

Ionian Islands.—Petroleum and tar springs occur somewhat similar to those of Trinidad.

Syria.—Asphalt, or bitumen, is in great abundance on the shores of the Dead Sea. In its black color and fracture it resembles ordinary pitch. The average density is 1.16. In other essentials it seems to resemble the chapapote of Cuba. (P. 632.)

There is a deposit of bitumen on Mount Lebanon, in rocks probably of volcanic origin.

Caucasus.—In the provinces of Shirvan and Daghestan there is a great abundance of naphtha, especially on the promontory of Baku.

Crimea.—An extension of the same formation exists in the peninsula of Kertch, and there is also a bituminous formation on the peninsula of Taman. (P. 634.)

Arabia.—Bitumen and petroleum are very abundant in strata wholly composed of oceanic animal matter, and sometimes exuding from fissures and abrupt declivities, caused by the intense heat of the climate. (P. 634.)

Persia.—Bitumen, petroleum, and naphtha are found in all the countries bordering on the Tigris and lower Euphrates, and also in Koordistan. (P. 635.)

Burmese Empire.—In the province of Ava there are beds of brown coal and wells of petroleum.* In the province of Pegu a vast quantity of asphaltic oil is collected, amounting annually to 100,000 tons. The substance is associated with tertiary coal. (P. 652.)

China.—Bituminous substances are stated to be diffused in this Empire, but the details are not ascertained or even the fact properly certified.

These instances are, it is presumed, sufficient to illustrate the general occurrence of asphaltum and asphaltic products; the enumeration is not supposed to include all, but only the principal localities, and in respect to which the particulars are most fully established. There is one obvious circumstance deducible from the preceding statements, viz, that the substances are almost exclusively confined to the warmer regions. This may have an important reference to their formation, but, in the present state of our knowledge on the subject, we are not aware how far the element of heat may be concerned in the generation.

II.—MODES OF OCCURRENCE.

There are diversities both in the strata with which the asphalt is associated and in the nature of the deposits. These seem referable to three principal divisions:

(1) In which the containing and adjacent rocks are of igneous origin. This is the case in Cuba. Mr. Taylor remarks:† "From the direct observations that we have been enabled to make it seems very probable that all the bituminous matters, whether known under the names of chapapote, asphalt, mineral pitch, petroleum, mastic bitumen, liquid or fixed bitumen, and other terms. Simple varieties of the same mineral substance appear at the surface at the points of fracture in the disturbed and metamorphic regions; in other words, in the centers of dislocation of the beds." The latter part of this sentence would seem to indicate that the associated rocks are sedimentary, but in other passages of the same article they are stated to be serpentine, euphotide, diorite, evidently of the true igneous type. The asphaltum at Mount Lebanon is also represented as contained in igneous or volcanic rocks.

(2) In which the containing rocks are stratified and of the primary or secondary epochs. The mode of occurrence is usually that of dissemination in the granular form throughout the entire stratum, or that of springs of petroleum, naphtha, etc., issuing from the soil or exuding from the fissures of the beds. The bituminous limestones of France are instances of this case, and perhaps similar strata in the vicinity of the Dead Sea.

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*This district has been examined recently by the officers of the geological survey of Bengal, who have established the age of the fuel to be Eocene, but no further details are accessible.

†Op. cit., 248.

(3) Where the deposits are in formations of Tertiary age, and usually accompanied by lignite or brown coal. These are the most abundant sources of asphaltic substances, and include those of Pegu, Trinidad, Maracaibo (according to Boussingault), and probably several of the other localities enumerated in the preceding section; but the descriptions are often too vague to ascertain positively to what geological group the deposits must be referred. As the Trinidad bitumens belong to this division many of the succeeding remarks are equally applicable to all the asphaltums of similar age and similar associations, and the species of derivation we shall see reason to adopt is probably the one by which most of them have been produced; but this method is not intended to apply to the first two divisions, as other causes may have been concerned in the generation, where the circumstances are very different to those to be considered.

III.—SPECIALTIES OF THE TRINIDAD ASPHALTUM.

Three principal varieties of this substance are found here, viz, asphaltum glance, ordinary asphaltum, and asphaltic oil.

The first is hard and brittle, of an intensely black, brilliant luster, and eminent conchoidal fracture. It contains but a small proportion of earthy impurity and only a little water. This is the rarest of the three, and at the same time the most valuable.

The second comprises the usually occurring material, which is of a brownish-black color, dull, and generally even fracture. It contains from 20 to 35 per cent of earthy admixture, a considerable proportion of water, and possesses the property of plasticity, which, however, gradually disappears on long exposure to the sun and atmosphere. This is a very essential characteristic, to which many of the phenomena exhibited are attributable.

The third occurs associated and diluted with water, but when concentrated appears as a dense, black fluid, with powerful bituminous odor. If collected in an open vessel, the more volatile portion evaporates after a few months, leaving a solid, black substance of similar appearance and analagous properties to the asphaltum glance.

The existence of bitumens is manifested in a variety of ways. Sometimes an area of one or more acres is occupied by a number of cones about 2 feet high and consisting of asphalt associated with earth; in other cases there is only one mass, of much larger dimensions, but similar composition. These have frequently orifices in the center by which the substance rises to the surface in a liquid or highly plastic form. Very frequently the asphalt is only mixed with the soil in pieces or small blocks irregularly disseminated or passing down into the laminæ of the substrata; the surface in this case is usually of much greater extent. The asphaltic shales and sandstones of La Brea furnish soils of this description. Springs of asphaltic oil or petroleum are abundant; these often collect into pools, forming deposits of what is termed "liquid pitch."

There are also submarine phenomena of a similar nature. Masses of the solid material known as pitch banks exist off the shore of Oropouche and opposite Erin, while the places where the liquid bitumens issue from the bed of the sea are indicated by the oily substance floating on the surface of the water and the powerful odor which prevails in the vicinity.

Asphaltum glance is found on the beach at Guapo and Guayguayare, especially after stormy weather.

In consequence of the plastic nature of the ordinary bitumen already alluded to, it invariably yields to pressure, until a new equilibrium is established; thus where houses have been erected on strata containing bituminous laminæ or masses, the additional weight displaces the latter, the foundations give way, the buildings diverge from the perpendicular, and their stability is endangered. Similarly, where excavations have been opened in the solid asphalt, the pressure of the sides forces up the center, and the cavity speedily closes. Even in isolated blocks of the asphaltic shale, or sandstone, the bituminous layers are forced or expressed from their original position, accumulating on the sides or surface of the masses, and this is effected by the weight of merely a few inches or feet of the stratum. There are numerous instances of this in the fragments separated or fallen from the parent bed at Point La Brea. It must be manifest that this is a sufficient cause to account for the appearance of the solid and semisolid materials at the surface, as the force urging them upwards, of course, augments with the depth and consequent pressure of the superincumbent strata. Reasons will be presently advanced for concluding that the production of asphalt is in constant operation, or at least in any particular locality, till the substance from which it is generated becomes exhausted. This explains the continuous renewal at the surface, since, of course, it is only subsequent to the formation of the asphalt that the property of susceptibility to pressure is assumed.

Other causes must be sought for the elevation of the liquid conditions of the substance. Sometimes they are carried up in association with water, but probably their production is accompanied with a development of gas, which, being confined in the intergranular spaces of the stratum, exerts a force on the fluid particles, compelling them to rise through any fissures or joints which may exist. In confirmation of this view, the oily liquids are frequently accompanied by an emission of gas, in which sulphureted hydrogen is sometimes detected.

Where the form of the surface is favorable to the collection of the asphaltic material, accumulations are formed, varying in magnitude with the extent of such surface and the richness of the sources. The pitch lake is an eminent instance of the concurrence of conditions favorable for a large accumulation. It seems to occupy a depression of the strata. Original inequalities have been smoothed off and the cavity filled up to the present level of 138½ feet above high water. The contents of the whole area being probably some millions of tons, considerable forces must have been concerned in the elevation of all this material to its present position.

The surface (99 acres) does not present a continuous sheet of asphalt, but is intersected by numerous depressions, in which the rain water collects. As these frequently anastomose, the lake is divided into a number of small bituminous areas with interaqueous spaces. Each of the former (judging from the appearances on the adjacent asphaltic plateau) has contained a center of emission, from which the substance has issued and gradually advanced until the material from the surrounding foci, being encountered, further progression was impeded in the vertical, in place of the horizontal, direction.

On first rising to the surface the asphalt contains a considerable admixture of oily substance which acts as a solvent, rendering the former semifluid, in which condition it flows but rather slowly. This oily element gradually evaporates on exposure to the rays of the sun, leaving a more solid substance, but still invested with a certain internal mobility of the particles. The outer portion is naturally harder and less pliable than the inner, as the volatile combinations can more readily escape, and consequently when two adjacent masses come in contact they are sometimes not sufficiently plastic to unite or join together, but leave a division, which originates the depressions in question. The curved surface of the asphalt is, however, so generally manifested that it probably invariably assumes that form when advancing or augmenting vertically; and, in support of this view, the material which has emanated from a central orifice and undergone progression is very usually found disposed in similar curves over the whole of the bituminous districts. The deepest cavity observed was about 10 feet. Mr. Manross* ascribes a revolving motion to these areas, which he terms "ebullition," and supposes that the material is continually passing from the center to the edges, where it "rolls under" and rises again in the middle. Nothing of this sort was observed by the authors, nor is it very obvious to what force or what influence this is attributable. There seems, however, to be a daily motion of another description, due to the expansion occasioned by the heat of the sun. On unclouded days the asphalt attains an average temperature of about 140°, and, as it sinks during the night to 70° or 60°, suffers a variation in the twenty-four hours of 70° to 80°, which must produce a considerable change of volume, penetrating some depth below the surface.

The space between the aqueous channels is not perfectly level, but, almost without exception, exhibits a slight curvature, of which the apex occupies the center. This is probably an evidence of the expansion contended for, but the opportunity did not occur for proving that this convexity diminishes in the night.

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*On the "Pitch Lake of Trinidad," American Journal of Science, September, 1855. This is a very good description of the external features of the lake and locality.

The surface is frequently marked with ridges, especially near the edges; these are due to the constant expansion and contraction which is supposed to occur.

The form of the areas is sometimes almost, and usually approximately, circular.

The temperature of the water in the hottest part of the day was found to be 96°, while that of the air at some distance from the lake was 88°. This water seems generally pure, but where the asphaltic substances or gases are issuing it is, of course, affected.

There is no perceptible inclination of the surface, at least none amounting in any direction to 30″. In a few places trees and bushes are growing; the soil of these spots is precisely similar to that on the adjacent asphaltic plateau, viz, sandy bases impregnated with bituminous matter. These are either remnants of the original surface or are localities where the principal portion of the asphaltum has been removed, leaving the earthy admixture in excess.

Small dome-shaped swellings or protuberances from 2 inches to 1 foot in diameter are very common; these are always hollow, and the covering, about half an inch thick, seems to have been raised by gaseous pressure developed in the conversion of material into asphalt.

There are generally two or three places where the emission of the semifluid substance is still in operation. This is accompanied with an evolution of sulphureted hydrogen gas; the circumjacent surface is at first soft, but, as before explained, attains the ordinary consistency after a time. These manifestations of activity are but slight compared with what prevailed at an earlier epoch, when this large deposit was formed. The sources are now relatively exhausted; but the substance itself remains, an evidence of the magnitude of the actions which have operated over so limited an area.

The La Brea Point is lined with masses of asphaltum, derived from the blocks and fragments of the bituminous strata scattered about. As already stated, wherever a free and exposed surface exists the substance exudes from the interior and accumulates on this surface, assuming generally a dome-shaped form, and sometimes rising in campanulate bosses, which are hollow, usually several feet in diameter, and with a shell of 6 to 8 inches, elevated by the pressure of gases internally generated by the solar heat to which they are especially exposed. Under the influence of a high temperature the volatile constituents will escape from the outer envelope, but at a certain depth, being no longer able to penetrate the substance, and assuming the gaseous condition, will collect together at such lines as the junction of the asphalt and the stratum and exert an expansive force, producing the protuberant forms observed.

The afternoon sun strikes with full force on this coast, and, the density of the vegetation excluding the breeze, the temperature, further augmented by refraction from the highly heated surfaces of the asphalt, becomes almost insufferable.

A species of natural coke is occasionally observed along the shores, with the porous structure and prismatic form of the artificial product, but, of course, much denser on account of the large proportion of earth; the adjacent portions of the stratum or cliff are frequently reddened and semibaked, evidencing the considerable degree of heat which has attended the operation.

The outer surface of the asphaltic masses often consists of a brown, porous, sandy earth, which occurs extensively about La Brea, and is evidently the mineral residue of the substance; this shows that there is not only a removal of the volatile constituents, but also an expulsion, and perhaps oxidation, of the fixed carbon.

All previous descriptions refer the bituminous material scattered over the La Brea district, and especially that between the village and lake, to streams which have issued at some former epoch from the latter and extended into the sea. This supposition is totally incorrect, as solidification would probably have ensued before it had proceeded one-tenth of the distance, and such of the asphalt as undoubtedly escaped from the lake has not advanced more than a few yards, and always presents the curved surfaces already described, and never appears as an extended sheet. These bituminous masses or layers are too intimately associated with the soil and substratum to have been derived from any foreign source.

Wherever they occur, asphaltic shale or sandstone is found to occupy the surface. The borings which were prosecuted near the shore, after passing through several masses of asphaltum, arrived at a bed of clay entirely destitute of bituminous admixture. The latter is undoubtedly a product of particular strata, of which the two specified above are eminent instances. The ridging and furrowing on portions of the road to the lake are not evidences of flowing, but due to constant expansion and contraction, as well as the effects of traffic. The consequence, then, to which we are conducted by the above facts, is that where a stratum highly charged with bituminous matter occupies a section of country, portions of the asphalt appear on the surface either in extended sheets or in detached pieces, as in the gardens of La Brea village, or in large masses, as at La Brea Point, where they protrude for some distance into the sea.

IV.—ORIGIN AND GENESIS OF THE ASPHALTUM.

In the preceding description it was scarcely possible to avoid assuming some conclusions respecting the derivation. These will now be more rigorously considered. The section exposed in the low cliff at Point d'Or is extremely instructive. The asphaltic shale is perceived over a bed of loose, yellowish sand, which contains no traces of any bituminous substance. The nature of the former stratum is that of a brown, porous, shaly sand, including masses of asphaltum rather irregularly distributed, but with a manifest tendency to occupy the directions of stratification. A close inspection of the appearances shows that this light and porous character is due to the loss of material, evidently asphaltum, which has secreted from all parts of the stratum into the lines of weakness. This accumulation, and consequent exertion of expansive force, is proved by the frequent elevation of the laminæ to 30°, even 50°, when the true inclination of the stratum does not exceed a few degrees. The asphaltum prevails extensively on the surface and occurs around the whole point, having either moved in a plastic condition from above or exuded from the fallen blocks of the parent stratum. When this bituminous bed thins out the asphaltic material disappears from the surface, as in Point d'Or pasture. These circumstances justify the conclusion that the origin of the asphalt is in the stratum itself, and not referable to any process of distillation or ascension from below, since it is natural to suppose some evidence of the passage through the subjacent sands would have remained.

The same conclusions are verified by numerous repetitions of asphaltic strata, intercalated between nonasphaltic, along the coast from Point la Brea to Guapo; and an additional interest attaches to many of the sections from the process of segregation being still in operation. Every stage may be observed from the complete diffusion in minute particles to the concentration in large masses. This tendency to aggregation is very marked and constant. The reason is rather obscure, but possibly the development of gas in the formation of the substance expels it from the pores into the directions of minimum resistance. Sands and sandstones generally contain the asphalt as cementing matter around the granules. In this case the porous nature of such beds, compared with shales and clays, may have permitted the continual escape of any gases or vapors which were generated.

If, then, these bituminous substances are products of individual strata, they must have been either originally deposited with the other mineral matter or subsequently generated from preexisting material. On the former supposition, why should certain beds contain them in abundance and no trace exist in others above or below? Besides, we have no proofs that bitumens contribute in anyway to the original formation of strata. The most powerful evidence may be adduced, however, in favor of the other method, since many of the peculiarities exhibited seem due to the modification of an old, or the development of a new, material. The only substances containing sufficient carbon and hydrogen for the formation of asphalt and likely to be included in strata are vegetable and animal remains. The former are particularly abundant at La Brea, where most of the asphaltic beds have been originally carbonaceous or lignitic shales. The conversion from the ligneous into the bituminous structure may be seen in every stage, from the first deposit (usually parallel with the fibers) to the total obliteration of organic texture, when nothing but the external form of the wood remains.

This change does not appear to operate, or by no means so extensively at least, in strata of pure carbonaceous contents, such as lignite, but it is rather characteristic of those in which a large proportion of earthy matter exists. This seems to refer it to some reaction of the containing bed on the vegetable substances, and is probably a modification of the process producing lignite, since contiguous strata may be one lignitic, the other asphaltic, and even the same stratum occasionally exhibits both varieties. These circumstances conduct us to the proposition that the bituminous substances of La Brea, whether fluid or solid, have been formed from vegetable material by direct conversion at the ordinary temperature.[*]

This view of the genesis of asphalt is no speculation, as the facts which crowd around it invest the conclusion with a character of the highest probability, almost amounting to certainty; for not only are there local evidences, but it also suffices for the explication of the various phenomena.

The first department of the process consists in the formation of a black, oily substance, similar to what arrives in a liquid form at the surface, and has been termed asphaltic oil. This may not be invariably the case, but has been frequently noticed, particularly with respect to ligneous masses as distinguished from leaves and fragments. There is a constant endeavor on the part of this fluid to escape from the material in which it is formed. Some specimens of wood in the earliest stages of conversion continued to discharge the oil for several months after being placed in the Museum of the Survey at Port-of-Spain, and nothing is more common in the La Brea district than to observe it exuding from the soil or issuing from the fissures in the cliffs. Is this discharge due to expansion consequent on the new structure which is induced, or is the generation accompanied with the formation of gases or vapors? Whatever the cause, the circumstance seems sufficient to account for the elevation of the oils in the form of springs, etc.

It would be interesting to ascertain whether paraffin exists in these oils, as the origin of that substance has been ascribed to distillation.[†]

The residue, after the separation of this material, consists of the ordinary asphalt, usually containing the oils in sufficient quantity to render it highly plastic. In this condition, as before stated, segregation of the particles ensues, and wherever pressure operates expulsion from the strata is effected. The delivery at the surface may depend on the weight of the superincumbent strata, on augmentation of volume, or on the production of gases. The earthy admixture (20 to 30 per cent) is taken up either during segregation or in forcing the upward passage.

The purer varieties, such as approach or are identical with asphaltum glance, have been observed in isolated masses, where there was little doubt of their proceeding from ligneous substances of larger dimensions, such as roots and pieces of trunks or branches. In this case no displacement from the original position has ensued, and consequently the material is free from earthy impurities. There are some instances where the oil seems to have solidified in the joints or fissures of strata (as in veins traversing bituminous marl near San Fernando), affording a substance of typical purity.

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[*] It has not been possible to examine what this action is, as such an investigation would involve a long chemical research, which, after all, might not be successful. Bischoff states (Chem. and Phys. Geol., Cavendish Soc. Trans., vol. 1, p. 288) that in the derivation of resins and asphalt from wood a large proportion of carbonic acid and a little water are separated; but in the coal series of minerals the reverse is the case. On page 281 (op. cit.) the same author gives important formulas, showing how the bitumens may be generated by the mineralization of wood, giving three cases: (1) In which 58 per cent of carbonic acid and 14.8 per cent of carbureted hydrogen are disengaged; (2) where 56.2 per cent of carbonic acid is disengaged and 2.32 per cent of hydrogen oxidized; (3) where 36.62 per cent of carbonic acid and 15.23 per cent of water are disengaged.

Though not stating positively that any of the deposits of asphalt are referable to this origin, Bischoff evidently assumes this principle of conversion to be of ordinary occurrence, especially in such passages as the following: "Lignite passing into mineral resin, amber, retinite, asphalt," etc.

"Asphalt is not an uncommon product of the decomposition of organic remains."

"In the decomposition of vegetable substances there are formed, besides carbureted hydrogen, liquid and solid hydrocarbons, such as naphtha and petroleum or mineral oil, mineral tar" (pp. 288, 290, 291).

See also the evidence afforded by Mr. Cruger's microscopical researches on this subject at pages 175, 176.

[†] The negative results in respect to paraffin obtained by chemists in the United States were from the solid asphalt of the lake.

It is also necessary to admit a species of conversion by contact, since pieces of wood included accidentally in the asphaltum—for example, by dropping from overhanging vegetation—are often found partially transformed into that material. The interior of the hollow protuberances already described as existing on the surface of the lake generally contains traces of the lighter portions of vegetation. These are manifestly derived from leaves, etc., which are blown about the lake by the wind, and, eventually becoming covered with the asphalt, a process of conversion ensues, accompanied by the formation of gaseous substances, which involves the distension of the surface and the production of the small swellings in question.

Some asphaltic sandstones, in which bituminous matter is disseminated as a cement around the siliceous granules, possess a very homogeneous structure, and at first it was supposed the former was derived from comminuted preëxistent substance and deposited as sediment along with the sand; subsequent examinations, however, have detected strata in which the production of the granular variety of asphaltum was in progress, and, as the other circumstances were analogous, no hesitation was experienced in referring both to the same origin.

The carbonaceous shales, etc., in which the generation of the bitumens has operated exhibit strong resemblances to the present swamp soils, and the diffusion of the vegetable débris is very similar. On the Guapo shore there is a detached piece of stratum which can scarcely be distinguished from the surface of the adjacent swamps. It is penetrated in all directions by numbers of fibers, small twigs, and blades of grass, much of which material is transformed totally or partially into asphalt.

Over the greater portion of the La Brea district the action has ceased, and there are but slight traces of the origin; sufficient activity, however, still remains to indicate clearly the source of material and the march of development. On the institution of comparisons, the results in both cases are so analogous as to stamp them with the evidence of being produced by similar operations.

The existence of porcelanite in the vicinity of the lake might lead to the supposition of distillation being concerned in the asphaltic phenomena. Just the same appearances as those described are noticed in other localities remote from all traces of those strata, and a reverse action seems rather to prevail, as where the asphalt is coked or charred the surrounding earth is baked and converted into a species of porcelanite. The combustion attending the production of the latter probably tends to a resolution of the carbonaceous matter into ultimate combinations, such as carbonic acid and water, and their total dissipation. Films of a pure asphalt resembling the solidified oil were observed lining the joints of porcelanite near Erin, but this was quite an exceptional circumstance and not to be considered as of general signification.

The localities where asphalt occurs are indicated on the general geological map. Many others may exist in the uncleared lands and are till now unknown. It will be observed they are principally contained in the Moruga series of strata, which is everywhere distinguished by carbonaceous and lignitic beds. In the Naparima marl, near San Fernando, the manifestation is rather that of a saturation of the strata with bituminous substances. The same derivation may be applicable in this case; but, as no beds charged with vegetable remains have been noticed, it is well to be guarded in forming hasty conclusions. A concentration of animal fossils (especially shells) sometimes occurs at the above locality; these are usually fragile, and have evidently undergone an abstraction of material. May they have partially contributed to the formation of the bitumen? A few deposits also exist north of the Guaracare. One of these exhibits the solid asphalt traversing the soil in irregular veins. The structure is somewhat granular, and the surface distinguished by eccentric rings and conchoidal markings, also described as characteristic of the Cuban chapapote. It is much purer than the ordinary bitumen, and is mistaken by the inhabitants for coal, from its very black color and peculiar structure. Under the blowpipe it ignites immediately, melts, and burns with a large, smoky flame. The conditions are manifestly different in this case to what were previously described, but the late period of the season when this place was visited precluded any detailed investigation.

The principle deducible from the preceding statements is to the effect that one of the regular processes of the mineralization of vegetable matter consists in the production of substances of the bituminous series in distinction to those of the coal series. It would be highly unphilosophical to attempt to limit this operation to localities such as Trinidad, where such an origin may be clearly demonstrated, since the action of similar conditions will naturally produce identical results. The same application may consequently be applicable to the occurrence of asphalt, not in the tertiary formations only, but also in the secondary limestones and strata.

M. Parran[*] contends for an "époque asphaltique," distinguished by the distillation and condensation of bituminous substances.

This expression of epoch in the sense implied above, although convenient in geological speculation, is liable to conduct to premature generalization, unless employed with the utmost reserve and caution, and is further calculated to exercise a dangerous influence from its tendency to convey the impression of a partial or limited rather than an invariable operation of natural laws, whether in time or space. As to the distillation, though a favorite theory, it is deficient in those actual evidences which are very essential if a character approaching to certainty is to be conferred upon it. The circumstance of beds subjacent to asphaltic limestones or other strata being frequently entirely destitute of bituminous traces is a most forcible and fatal objection, notwithstanding the ingenious devices which have been proposed to account for it. Thus the author above mentioned has recourse to a variety of hypotheses; and, although the tertiary formation in which the bitumens exist is described as containing lignite and vegetable impressions, the origin of the former is ascribed to a supposed prolongation of the carboniferous formation beneath the subjacent crustaceous system.

The results arrived at in the consideration of this question depend entirely on the evidences of observation, as the multiplicity of the duties devolving upon the persons engaged in the geological survey of Trinidad has prevented them from attempting experimental investigation, which might have contributed to a clearer appreciation of the subject and invested the conclusions with a more positive and convincing effect.

CROSBY'S DESCRIPTION OF THE PITCH LAKE.

Another interesting description of the pitch lake is by W. O. Crosby, in the Scientific American of August 6, from which the following quotations are made. The print before me does not give the year, but I apprehend the article was written some years ago.

The topography of the country about the lake is extremely simple. From three sides—north, west, and south—the land slopes gradually upward from the sea to the surface of the lake, which lies 140 feet above the gulf, while on the east the land is slightly higher than the lake, which, therefore, differs from ordinary lakes in resting, not in a valley, but on a hilltop.

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"It is fortunate," as one writer has remarked, "that the pitch, when compact, will not kindle, or, in other words, will not burn without a wick; for otherwise the entire region, including the village, might suffer the fate of Sodom and Gomorrah."

The pitch not only forms the seashore for nearly 4 miles, but in front of the village and perhaps 100 yards from the shore it rises from the sea as a solid barrier reef, which is often a source of danger to unwary boatmen. It is probable that the peninsula of La Brea owes its existence to the protection afforded the land by this reef of asphalt, which resists the action of the water better than the unconsolidated clays and sands forming the coast to the north and south.

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[*] Gisement d'asphalte aux Environs d'Alais, Ann. des Mines, 3me série, tome iv.

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The pitch is quarried by excavating areas 30 or 40 feet square to a depth of from 2 to 4 feet. As soon as the work ceases on one of these excavations the asphalt begins to obliterate it, the walls not closing in perceptibly, but the bottom rising up, and in a few days no trace of the opening remains. This is one of many indications of greater fluidity below the surface. Toward the center of the lake are several detached areas, a rod or two in breadth, which are softer than the rest of the surface and yield under the feet, "so that on standing a few minutes one feels that he is gradually settling down, and in the course of ten or fifteen minutes he may find himself ankle deep." "But," as Mr. Manross truly said, "in no place is it possible to form these bowl-like depressions around the observer described by former travelers." Nor is it probable that Kingsley is right in saying: "No doubt there are spots where, if a man stayed long enough, he would be slowly and horribly engulfed." The inferior density of the human body would prevent its submergence even if the pitch were quite fluid.

In the vicinity of these places many small streams of gas escape from the pitch. The evil smell and the deposit of sulphur left on the pitch tell us that the gas is chiefly sulphureted hydrogen, but the sulphurous odor ceases to be perceptible at a distance of a few rods, and does not extend for 10 or 12 miles, as some writers have asserted.

The surface of the lake does not present a continuous sheet of asphalt, but is traversed by a network of channels, in which the rain water collects. These unite and divide most curiously, forming one connected system and dividing the pitch into numerous flat-topped or slightly convex areas of islands, which are usually of quite irregular outline, though sometimes nearly circular, and from 10 to 100 feet in diameter. A piece of marbled paper would give an excellent idea of the appearance of the lake. The sides of these channels are convex, presenting curves of great regularity and beauty, and where three or four channels meet a star-shaped depression is formed.

Several explanations of this peculiar structure of the lake have been proposed. Each of the many hundred areas into which the lake is divided possesses an independent revolving motion, in this wise: In the center of the area the pitch is constantly rising up en masse, displacing that which previously occupied the center, and forcing it toward its confines. Where the edge of such an expanding area meets that of an adjoining one the pitch rolls under, to be thrown up again in the center at some future period.

We find unique and conclusive evidence of this revolving process in "numerous pieces of wood, which, being involved in the pitch, are constantly coming to the surface. These fragments of wood are of the same recent origin as the leaves and twigs contained in the vesicles of the pitch. From the surrounding forests or the green islands of the lake itself they have found their way into the water channels, became water-logged, sunk to the bottom, and being drawn up again by the ever-revolving pitch." The true cause of the revolving motion of the pitch and of the structure resulting therefrom is apparantly the great diurnal range in the temperature of the surface of the lake. On uncloudy days the asphalt attains a temperature of about 140° F., and sinks during the night to 70° or 60°, suffering a variation of 70° to 80°, which must produce a considerable change of volume. This expansion is superficial, and its chief tendency is to extend the pitch horizontally. Where the pitch is covered by water it will not experience this alteration of volume, and these protected areas are forced downward by the expansion of the unprotected areas.

No soundings have ever been made in this lake, and its depth is unknown. The thickness of the deposit is, of course, a factor of the first importance in determining whether the supply of asphalt is likely to prove practically inexhaustible. In considering the question of the probable permanence of the supply, it is also important to remember that the material is doubtless still escaping from the underlying asphaltic sandstone, though, perhaps, very slowly.

As regards its origin, the lake is believed not to differ essentially from any of the patches of pitch scattered over the surrounding country. It appears to be simply a large puddle of pitch, which has oozed out of the sandstone and collected in a basin-like depression in that rock.

JOSEPH'S HISTORY OF THE PITCH LAKE.

A history of Trinidad by E. L. Joseph, published in 1837, contains the following description of the lake:

I now come to describe the asphaltum, or pitch, lake. On approaching the point called La Brea from the sea a strong bituminous odor is smelt at the distance of 2 leagues or more, and large black masses are perceived towards the shore; these appear like rocks at a distance, but are, in fact, bodies of asphaltum. As you near the point you perceive the land covered with dense and gigantic virgin forests, save in one place. This is the lagoon of pitch; its surface can scarcely be perceived from the gulf. The seaboard is fringed with the usual marine plants. No forest trees arise here, although at intervals clumps of very dark dwarf bushes are seen.

On landing a respectable-looking village presents itself. Here and there thick layers of asphaltum of several tons' weight overspread the surface of the soil, appearing as though they had been placed there by man, although, in fact, these layers have burst through the soil, which rests on immense strata of asphaltum. This substratum affects in an extraordinary manner many of the light buildings of the village. The posts that support these occasionally sink perpendicularly into the earth and asphaltum, but more generally the layers of pitch affect the posts so as to make them lean in an oblong direction, apparently endangering the buildings. This does not alarm the inhabitants of these dwellings, who, of course, build them of light materials, as often, when a house is on the point of falling in consequence of the posts leaning to the right, through some action of the substratum the posts not only resume their perpendicular, but gradually commence leaning in a contrary direction.*

Leaving this singular village, you take a wide and good road to the lagoon, which is situated about 5 furlongs from the village, at an elevation of 80 feet above the level of the sea. This road is flanked with very large cashew trees. To the right is an elevation, on which are many *conucos* (this is the South American term for a house and small cultivation). The soil of these *conucos* is half composed of particles of bituminous matter and is remarkably fertile. Dark-red and yellow pineapples are here produced of matchless quality. The pine of La Brea is a species distinct from the common *ananassa* of the West Indies.

Passing this elevation, you meet palm-thatched cottages (for the borders of the lagoon are inhabited); these are more powerfully acted upon by the mobility of the substratum of pitch on which the soil for a considerable distance round the lake lies. These huts appear more like card houses going to fall than human habitations; but the movement of the asphaltum is too gradual to cause accidents. These dwellings seldom or never fall, but, to use the expressions of their owners, regain their plumb.

At length you reach a place on which no hut can be erected; the whole lagoon is open. Before you a most extraordinary spectacle presents itself, which words can not describe and which the pencil has failed to delineate. This lake is about half a geographical league in circumference; it is surrounded on all sides by dark woods, save toward the sea; the surface seems perfectly black during the rainy season, but in dry weather it has a partial grayish hue; it appears as though billions of tons of pitch had boiled up from the earth from the effects of an immense subterranean fire which has been extinguished and left the asphaltum to cool in enormous bubbles.

Chasms between these black masses or bubbles extend in different directions all over the surface of the lake. You can scarcely walk 30 yards without having to cross one of them.

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*I was told an action of trespass was brought before the magistrate of La Brea of a singular nature. The plaintiff alleged that the defendant's house bodily intruded on his (plaintiff's) land. I know not how this cause was decided.

These chasms are not abrupt, but gradually shelve off in an elliptical manner. The masses of asphaltum meet at the bottom. These apertures vary from 3 to 30 feet in width and are from 2 to 6 feet in depth. They are filled with water, which, although it has a slight bituminous taste, is wholesome. Small fresh-water mullets and little caymans (alligators) are caught therein.

Nearly all over the lake arise at intervals little islets (if I may be allowed the expression) of stunted trees. These, taking advantage of the slightest layers of soil, dart their hardy roots into the asphaltum and enjoy a precarious vegetable life, supporting myriads of parasites. These clumps of dwarf trees are by no means stationary. The imperceptible yet incessant movement of the asphaltum perpetually transports these vegetable islets from one part of the lake to another. Sometimes one of them sinks into the lower regions of asphaltum and is again thrown up at some distance, its dark, verdant hue changed to the blacker dye of the lagoon; it is encrusted with bitumen, and its vegetable juice changed to petroleum.

Thousands of beautiful butterflies and hundreds of more brilliant hummingbirds flock about these islets; above these flocks of gaudy paroquets and more beautiful mangrove cuckoos take their flight. The superb array of these birds and insects makes an extraordinary contrast to the Stygian lake below them.

The whole dark landscape appears unlike aught we have ever seen. The entire surface of the lagoon seems at rest. We behold no part of it in action, and yet we are convinced that the immense body of asphaltum of this black lake is incessantly in motion.

It is time now that I conduct my readers toward the more active part of the lagoon. In order to do this, we must approach the side nearest the sea. Here we encounter streams of petroleum, slowly but perceptibly flowing. Let us advance with caution. As we sink ankle deep at each step, we descend a little. Let us here pause; there would be danger in advancing further. Behold these fountains which supply all these rills of petroleum. No man may venture nearer. The strong bituminous and sulphurous odor which exhales from this region prevents even birds from flying over it; nothing alive dare approach nearer than we are. All before us is still as death.

The liquid part of the lagoon may be about 3½ acres, but I judge this by the eye; it can not be easily measured, and no two days has it the same extent and appearance.

I have found in different parts of this lake, but principally near the petroleum, large quantities of sulphur, but none of it in its pure state; it is all more or less mixed with bituminous matter. Near the great reservoir of tar I have picked up large grains of pure muriate of soda (common salt).

Those who live in the neighborhood of La Brea declare it conducive to health to bathe in the chasms of this lagoon. I have often tried these singular baths, and found or imagined them salutiferous.

During the wet season there is so much water in the hollows of the lagoon as to prevent its being seen to advantage; and in the dry season it is laborious and painful to explore it, on account of the insupportable heat of the asphaltum. The best time to visit it is in the height of the dry season at daybreak. Most of the chasms can then be leaped over by an active man. I would advise that a pair of worsted socks be worn over the ordinary stockings. These should be kept wet, but no shoes should be worn. By this means every part of the lagoon (save the part which is in a fluid state) may be traversed easily and without injury to health.

The influence of this lagoon on the surrounding space is astonishing. It mixes with and fertilizes the soil of the surrounding country 7 or 8 feet below its surface. If a well be dug within several miles round it, and water be not found within 10 feet, a thick layer of asphaltum is met with, through which an excavation must be made ere a spring is found. For a considerable distance off this coast the bed of the gulf is a stratum of asphaltum. Under the hill of Naparima, distant about 12 miles, a large mass of this mineral was discovered, which has been exhausted in making the North Naparima road.* This was done by cutting it in small pieces and allowing the sun to melt it. It is the best substitute for macadamization yet discovered. On the plantations in the neighborhood of the lagoon are many of what are called pitch pots, *i. e.*, cones of asphaltum, that have apertures on their summit which send forth streams of petroleum.

Sir Walter Raleigh caused his vessels to be pitched with this mineral. He must have mixed it with a considerable quantity of oil or grease to make it serviceable for such a purpose.

Admiral Cochran conveyed to England two shiploads of the produce of La Brea, but, after a little examination, the substance was found to require too much oil in order to render it useful. The improved and improving state of chemistry may reverse this decision. Should any discovery be made which might render the asphaltum a fit article for ordinary use, as pitch and tar, Trinidad could easily supply the commerce of the world with it.

The late Sir Ralph Woodford made two experiments with the asphaltum. In the first place, he had it laid over the soil of a part of Brunswich Square, Port-of-Spain, in order to check the growth of the grass. This attempt was signally abortive; the asphaltum, mixing with the soil, added to its fertility, and, of course, made the grass vegetate luxuriantly. This failure, however, suggests its being used as manure. The second experiment was to obtain carbureted hydrogen gas in order to light a beacon on the tower of Trinity Church. It burnt well, but created such an intolerable smell that the experiment was obliged to be abandoned. The person who conducted this experiment, although industrious and intelligent, I believe knew little of chemistry.

There is no record of any volcanic eruption having taken place at this lagoon, yet I submit one must have happened. I have seen large masses of asphaltum of several tons' weight lying on the summits of pretty steep hills detached from and totally independent of the soil. It could answer no purpose of man to convey them there, and in this climate no men, neither civilized nor savage, would undergo the labor of conveying these masses to such a distance for no purpose. The only conclusion that I can arrive at is that these masses of asphaltum were thrown there by volcanic eruptions.

Up the Orinoco there is a similar lagoon, and another at Maricaibo; but, what is more germane to the matter, on the other side of the sea (in a direction west by north), at the mouth of the Guarapiche is another asphaltum lagoon corresponding with the one on this side of the gulf. These asphaltum lakes are pages in the book of nature which philosophers have not yet deciphered.

KINGSLEY'S DESCRIPTION OF THE LAKE.

The following description of the lake is from the work of Charles Kingsley ("A Christmas in the West Indies"), published in 1879:

As we went onward up the gentle slope (the rise is 138 feet in rather more than a mile), the ground became more and more full of pitch, and the vegetation poorer and more rushy, till it resembled, on the whole, that of an English fen.

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The plateau of pitch now widened out, and the whole ground looked like an asphalt pavement, half overgrown with marsh-loving weeds, whose roots feed in the sloppy water which overlies the pitch. But as yet there was no sign of the lake. The incline, though gentle, shuts off the view of what is beyond. This last lip of the lake has surely overflowed, and is overflowing still, though very slowly. Its furrows all curve downward; and it is, in fact, as one of our party said, "a black glacier." The pitch, expanding under the burning sun of day, must needs expand most toward the line of least resistance, that is, downhill; and when it contracts again under the coolness of night it contracts, surely from the same cause, more downhill than it does uphill. And so each particle never returns to the spot whence it started, but rather drags the particles above it downward toward itself. At least so it seemed to us. Thus may be explained the common mistake which is noticed by Messrs. Wall and Sawkins* in their admirable description of the lake.

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* Sir Louis Grant was in error when he told Mr. Montgomery Martin that the pitch which made this road came from La Brea.

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Passing these little islands, which are said (I know not how truly) to change their places and number, we came to the very fountains of Styx—to that part of the lake where the asphalt is still oozing up.

As the wind set toward us, we soon become aware of an evil smell—petroleum and sulpheted hydrogen at once—which gave some of us headache. The pitch here is yellow and white, with sulphur foam; so are the water channels; and out of both water and pitch innumerable bubbles of gas arise, loathsome to the smell. We became aware, also, that the pitch was soft under our feet. We left the impression of our boots, and if we had stood still awhile we should soon have been ankle deep. No douht there are spots where, if a man stayed long enough, he would be slowly and horribly engulfed. "But," as Mr. Manross says truly, "in no place is it possible to form these bowl-like depressions round the observer described by former travelers." What we did see is, that the fresh pitch oozes out at the lines of least resistance, namely, in the channels between the older and more hardened masses, usually at the upper ends of them, so that one may stand on pitch comparatively hard and put one's hand into pitch quite liquid, which is flowing softly out, like some ugly fungoid growth, such as may be seen in old wine cellars, into the water. One such pitch fungus had grown several yards in length in the three weeks between our first and second visits; and on another some of our party performed exactly the same feat as Mr. Manross—"In one of the star-shaped pools of water, some 5 feet deep, a column of pitch had been forced perpendicularly up from the bottom. On reaching the surface of the water it had formed a sort of center table, about 4 feet in diameter, but without touching the sides of the pool. The stem was about a foot in diameter. I leaped out on this table, and found that it not only sustained my weight, but that the elasticity of the stem enabled me to rock it from side to side. Pieces torn from the edges of this table sank readily, showing that it had been raised by pressure, and not by its buoyancy."

True, though strange, but stranger still did it seem to us, when we did at last what the negroes asked us and dipped our hands into the liquid pitch, to find that it did not soil the fingers. The old proverb, that one can not touch pitch without being defiled, happily does not stand true here or the place would be intolerably loathsome. It can be scraped up, molded into any shape you will, wound in a string (as was done by one of the midshipmen) round a stick, and carried off; but nothing is left on the hand save clean, gray mud and water. It may be kneaded for an hour before the mud be sufficiently driven out of it to make it sticky. This very abundance of earthy matter it is which, while it keeps the pitch from soiling, makes it far less valuable than it would be were it pure.

It is easy to understand whence this earthy matter (20 or 30 per cent) comes. Throughout the neighborhood the ground is full, to the depth of hundreds of feet, of coaly and asphaltic matter. Layers of sandstone or of shale containing this decayed vegetable alternate with layers which contain none. And if, as seems probable, the coaly matter is continually changing into asphalt and oil, and then working its way upward through every crack and pore to escape from the enormous pressure of the superincumbent soil, it must needs carry up with it innumerable particles of the soil through which it passes.

In five minutes we had seen, handled, and smelt enough to satisfy us with this very odd and very nasty vagary of tropic nature; and as we did not wish to become faint and ill between the sulphureted hydrogen and the blaze of the sun reflected off the hot, black pitch, we hurried on over the water furrows and through the sedge beds to the further shore—to find ourselves in a single step out of an inferno into a paradise.

PITCH AND WATER LEVELS.

Mr. N. F. Graham, who is in charge of the asphalt works at Pedernales, an island near the adjoining main, and has had large experience with pitch deposits, believes that little volcanic tubes emitting gases may be found in groups at the bottom of the lake causing the pitch on the surface immediately above to assume the slightly elevated forms it does, causing the rain water to run off the elevated portions and remain between them. This opinion is based on his discoveries at Pedernales. He thinks, too, that the land pitch at La Brea is not without this peculiarity; that it is principally found in pits or volcanic holds in which it was originally elevated; and that between them the land is more or less filled with overflow pitch. Without expressing an opinion as to this theory, I beg to observe that, while most all the land pitch appears to be in land lower than the lake, large quantities of pitch are found in lots no lower than other lots (near by) where little or no pitch is found.

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*"Geological Survey of Trinidad," on asphaltic deposits.

FOREIGN SUBSTANCES IN THE PITCH.

So far as I am aware, all the scientists agree that all the asphalt at La Brea and vicinity is of vegetable origin. I am informed that black mangrove vegetation is always found in the neighborhood of these pitch deposits, and it is thought that by distilling tar made from the heart of the black mangrove wood oil and asphalt similar to that found at La Brea may be produced. But the following comments of Wall and Sawkins on specimens of "asphaltum more or less mixed with woody matter" make no mention of mangrove:

> A large number of specimens, not less interesting, remain to be examined, viz, asphaltum more or less mixed with woody matter. They are numbered 11, 12, 14, 15, 16, 24, 27, 28, 29, 30, 31, 33, 34 (thirteen specimens in all).
>
> No. 11 brings before us a piece of asphaltum showing no very distinct outward sign of structure. After maceration in spirits of turpentine this is found, however, to consist of some very loose-textured woody matter covered and filled with asphaltum. It consists of short and wide parenchymatous cells (larger numbers the same) and thin-walled prosenchymatous cells. It would look like some wood of *Carica Papaya* (the papaw), if there were any vessels. It appears to have been a soft and loose-textured bark. This substance has not undergone any change such as is brought on by decay. There were no signs of any of the humic bodies, no signs of insects, of fungi, or other bodies usually accompanying decay in moist air. It appears to me that this woody matter was only impregnated with pitch, without being decayed or otherwise decomposed or altered previously.
>
> No. 12 is less shiny than the last, and contains a large proportion of woody matters; this is rotten wood impregnated with pitch. There are woody fibers, the walls of cells and vessels, all in a state of decay. It must have been wood decomposing in moist air before it was impregnated with the asphaltic matters, which is proved by the existence of numerous fibers of some fungus.
>
> No. 14 is much like the last, but the traces of organic life generally accompanying decay in woody matter are still more numerous. We have here eggs and excrements of insects or worms and numerous fibers of fungi. The woody matter must have come from dicotyledons, and perhaps from ferns of smaller kinds. A part of this specimen looks again like the sediment of some swamp in or near a savanna, but impregnated with or changed partly into asphaltum.
>
> Nos. 15 and 16 have woody matter impregnated with pitch, much like No. 12. There are traces of animals and fungi, as observed before. Nearly all the medullary rays were destroyed, and there are holes in the substance longitudinally as well as transversely. The remaining tissue appears to me to belong to the family of *Cycadea*, as it shows much of the

dotted appearance characteristic of that family. The circumstance that these plants have much starch in parts of their tissues accounts satisfactorily for their being perforated in all directions by animals.

No. 24 is a very remarkable specimen. It is a piece of wood intermixed with large layers of asphaltum. On a superficial examination it became already evident that the wood had been largely changed, and that the asphaltum had taken its place. In this specimen the marks of decay, accompanied by insects and vegetable productions, are no more perceived; the transformation has been here of a thoroughly different kind and character. It affords us the opportunity of examining the hypothesis of the direct transformation of wood into asphaltum. The cells are corroded, as if acted upon by some dissolvent. The specimen was treated with oil of turpentine, then with Schulz's liquid, washed, and treated with ammonia. This dissolved again, as in the case of lignites, a large proportion of a brown substance. The remainder, being washed, treated with sulphuric acid and iodine, was found also to be unaltered cellulose.

No. 27 is a kind of asphaltum, having little of woody matter included, being a good specimen of glance pitch.

No 28 is much like No. 12.

No. 29 is partly pitch mixed with earthy matter, partly wood in a very advanced stage of transformation into pitch. It contains also matters of a more waxy nature, with some impressions of leaves and rootlets. The piece appears to be impregnated with sulphate of iron and alumina.

No. 30 is the same as No. 24, only here we have a large admixture of sand and other earthy matters. This piece shows beautifully the cells in their various corroded and half-dissolved state, while the remainder is partly of the nature of lignite, partly untouched cellulose. The earthy matter contains a curious assemblage of organic substances. There are oval and globular bodies resembling eggs of small animals and species of cryptogamic plants, perhaps pollen.

No. 31 is asphaltum mixed with earthy matter in the shape of small globules.

Nos. 33 and 34 are comparatively pure specimens of so-called glance pitch. They have only a small admixture of woody matter, epidermic tissues and others apparently accidentally mixed with it.

In nearly all these specimens, or at least where there is a strong probability of their representing wood in an actual state of transformation into asphaltum, an evident parallelism exists with lignite. They are reacted upon after the removal of the bitumen exactly in the same manner by Schulz's mixture and ammonia. As the chemical process which transforms wood into asphaltum must be very similar to that which changes it to lignite or coal, we conclude, not too rashly, I think, in considering them to be in the transitory state. We have also among our specimens such as are evidently in a state of conversion into lignite. As yet the difference in the process can not be pointed out, and we must content ourselves with showing the analogies, being persuaded that the specimens examined possess in every way the character of a tropical vegetation. I can not omit, however, to point out that the complete absence of arboreous monocotyledons, such as palms, is very extraordinary and anomalous. At the same time, a great uniformity pervades these fossils, and I do not know if I must again throw out the supposition that the whole of these remains belonged to a coast vegetation. The deposits of swampy ground which we have examined support this view.

In concluding, I must express my regret that I have not been able to identify more of the specimens with living plants or their parts. A little more might have been done in a place where access to museums and scientific libraries can be had and comparisons instituted with what has been written and collected on the same subject. The complete absence of scientific literature in our public library, where there is hardly a book to be seen beyond the most elementary in these matters, is, on such occasions, severely felt. Had efficient apparatus for pursuing investigations been obtainable, many of the specimens, especially the silicified woods, might have been more completely examined.

The thirteen specimens above commented on appear in a list which follows the comments.

Table showing the foreign substances in the thirteen specimens.

No.	Nature of specimens.	Appearance previous to examination.	Mode of occurrence.	Locality.
11	Asphaltic wood......	The external form that of wood, the internal structure obliterated by (converted into?) asphaltum.	Existing isolated in sandy or shaly strata.	Guapo.
12	......do....................	.........do..............................	.........do..............................	Do.
14	......do....................	Outer form of wood, interior asphaltum, with some remains of fibrous structure.	.........do..............................	Do.
15	......do....................	All traces of organic texture obliterated.	.........do..............................	La Brea.
16	......do....................	Much fibrous structure, with a species of liquid asphaltum between the fibers, which exudes on pressure.	.........do..............................	Guapo.
24	......do....................	Part of the structure is perfect, but sometimes entirely replaced by an asphaltic deposit parallel to the fibers.	Isolated in slightly bituminous sand.	La Brea.
27	......do....................	No trace of interior organic structure.	In shale..............................	Do.
28	......do....................	The ordinary aspect of external form preserved and internal structure obliterated.	Sands or shales..................	La Brea or Guapo.
29	Asphaltic wood and asphaltum.	Shows what is probably the junction of asphaltum and wood undergoing transformation.	From carbonaceous shale containing remains of plants and asphaltum.	La Brea.
30	Asphaltic wood......	....	Carbonaceous shale..............	Do.
31	Asphaltum............	Containing small globular concretions; no appearance of vegetable tissue.	Part of a mass of asphaltum, which may have been formed by conversion from strata rich in vegetable débris.	Do.
33	Glance pitch..........	Brilliant luster; no trace of organic texture.	In bituminous sand..............	Do.
34	......do....................	.........do..............................	Thrown on the beach after a rough sea.	Do.

It will have been observed that Wall and Sawkins give but one classification to the lake pitch and the land pitch adjoining, designating both as "ordinary asphaltum." I have no reason to doubt the correctness of this classification from my own observations. In color the ordinary pitch is substantially the same, but this does not include a glossy, tarry substance hereinafter mentioned, and otherwise it has only three distinct outward appearances, indicated respectively by the local names "liquid pitch," "iron pitch," and "cheese pitch," the cheese pitch of the land being firmer and stiffer (the more so, it seems, the further from the lake it is found) than the cheese pitch of the lake. I have heard here of a third kind of La Brea land pitch called "steel pitch," but while at La Brea I saw no pitch by that name, though I inquired for it; and I apprehend it would only be by close examination that a difference could be found between iron pitch and steel pitch, if this latter exists, or else it is not found in excavations of the usual depth.

There are two other substances found at La Brea, to which allusion is made in the above quotations from Wall and Sawkins. I should say, however, that these are of no importance either for good or bad. They both seem to have been the result of fire. The popular idea here seems to be that there must have been one or more fires fed by logs and underbrush on the surface of the ground where these substances are presumed to have been.

One of these substances looks like coke or burnt cinders, and the other like clay burnt to a crisp. The former is dull and lifeless in appearance, and the other is a red-yellowish substance, which may be crumbled with the fingers.

The coke-like substance is in such small quantities that it seems to me to be impossible for it to affect any shipment of asphalt, even though all of it be dug and shipped. I doubt if there is more than 1 pound of it to 100 pounds of asphalt; as to the other burnt substance, no shipper would ever think of mixing it with his shipments of asphalt, because it is of an entirely different color and a different substance, whatever it might originally have been, and its presence in a shipment of asphalt to any material extent would not fail to attract the attention of the most casual observers.

Out of thousands of tons of land asphalt I saw on the shore at La Brea awaiting shipment I did not notice one particle of this burnt clay-like substance, and only saw here and there a small piece of the coke-like substance, and the owner of one of the piles of pitch told me that these few pieces would be thrown out on final shipment. In this pile of 1,600 tons those present when I examined it estimated that there was not more than half a ton of this coke-like substance and from 2 to 5 tons of iron pitch.

Another substance, which appears to be unusual, attracted my attention—a black, filthy, sticky-looking stuff. I am told that the presence of this stuff—something like blue clay, only darker and more rotten looking—strongly indicates that the bottom of the pitch has been reached. The custom is to stop digging downward when the diggers come across this substance. I have deemed it proper to mention these foreign substances as being all I noticed, except ordinary dirt, because of a belief that seems to exist in the United States that an undue amount of foreign matter is shipped with the land pitch.

The color of the cheese pitch of the lake and of the land is substantially the same. I placed two carts side by side, one containing lake pitch and the other land pitch, and the difference was slight. The lake pitch was somewhat brighter than the other, and possibly of a more volatile appearance. But I think the simple fact that the cheese-like cells are fresher looking than the part between the cells, the cells of the lake pitch being larger and more globular than those of the land pitch, accounts for this difference. I obtained a sample of the lake pitch which had been dumped at the seashore for several months, and its cells were as much compressed and its general appearance no brighter than samples I obtained from the land pitch. I am only speaking in general. Some samples of the land pitch may be a shade fresher and richer looking than some samples from the lake, but, as a general rule, the reverse is the case. While, in a general way, all the cheese pitch is of the same color, yet an experienced eye would have no difficulty in seeing shades of difference both within and without the lake, owing largely, if not altogether, to the dirt which is found on the surface of the lake to some extent, and to a greater extent, of course, on the surface outside the lake. Of the two, there is probably greater uniformity of color in the cheese pitch of the lake.

In outward color, to an inexperienced eye, there is little or no difference between iron and cheese pitch; but one is very hard and the other soft, and they are not unfrequently glued together. In getting out the cheese pitch for exportation the pick and cutlass are used to clean it of iron pitch and other substances that may adhere to it. I understand that the iron pitch has little or no volubility; but, if this is so, the preponderating cheese pitch in refilling the excavations carries more or less iron pitch with it, as both qualities are found in the refilled excavations.

The rapidity with which an excavation fills up depends upon the location. Where the earth is greatly in excess of the pitch the filling-up process would, of course, be less pronounced, and where very little or no pitch is found the excavation would probably never fill up. But in a rich deposit of land asphalt an excavation yielding 3,000 tons would fill up to a substantial level with the surrounding pitch within a few months. I was assured by Mr. Reid, a credible gentleman of this place (whose statement was based upon the report of his agent), that an excavation about 50 by 50 feet, about 300 yards from the lake, from which he obtained several thousand tons of pitch, and not more than one ton of dirt—the most of which dirt was at the surface—in January and February last, is now completely filled up. A few days after he told me this I visited La Brea and examined the spot and talked with one or two persons having knowledge of the facts, and I am fully satisfied of the substantial correctness of Mr. Reid's statement. I was told on the spot that the excavation had been dug 14 feet deep, and that out of thousands of tons of pitch not half a ton of iron pitch was obtained. I presume this estimate of the iron pitch was only in an offhand way, but I am satisfied there could not have been more than a few tons of it at most. It is proper to observe, in this connection, that the pitch had not come to a level as it does in the lake, but presented a very uneven surface—more like a bed of huge rocks—which, if leveled, would, I judge, have been approximately on a level with the surface of the surrounding pitch. It seemed, from what was told me and from what I saw, that the surface dirt over the 3,000 tons excavated did not average more than 6 inches or a foot in thickness. On a lot close by, worked by Mr. George Deffentaller, I was assured that a pit 12 feet deep had been dug about six weeks before, and it had approximately filled up in a similar way. What was told me by Mr. Deffentaller and by J. Durham and G. Simon, who dug the excavation, and two or three other persons satisfies me of the substantial accuracy of the statement. I judge this refilling would have been nearly up to a level with the surrounding pitch if all the bowlders had been leveled down. I noticed one place in Deffentaller's lot which was rather exceptional, presenting an appearance more like the refillings in the lake. It was a place about 10 steps long and 3 or 4 wide which had swelled up, as it were—like bakers' dough—in a slightly convex form and as smooth as the lake pitch. I stepped on it, and it yielded to the heel of my shoe.

Mr. Gray and Mr. E. L. McCarthy, both of whom are employed by the Trinidad Asphalt Company or its agent, and in whose judgment I place confidence, favored me with a written statement to the effect that an excavation 4 feet deep and 8 feet square in the lake near the "place of supply" would fill up in less than two days; but, if taken from a place where the lake was of average hardness, it would take five or six days before the excavation would be entirely "obliterated," though it would substantially fill up in less time. They also stated that an excavation of the same dimensions (4 by 8 feet) at Reid's place (one-fourth of a mile from the lake) ought to substantially fill up in about six weeks.

It should be borne in mind that at other places the refilling is not so rapid. I saw a place on the same road, a short distance below Reid's place, where a deep excavation had been dug and considerable pitch obtained two or three months ago, and pitch had filled in the excavation to a very much less extent.

On the village road, near Deffentaller's works, I saw where about one-fourth of an acre had been cleared off, but no pitch dug. All the surface dirt, which was estimated to have averaged about a foot in depth, had been removed, leaving what appeared to be a solid body of pitch. The surface was more or less uneven—some of the "bowlders" being probably 2 or 3 feet high. There were several persons of the neighborhood with me, and they estimated that an excavation at this place would not yield more than 1 ton of iron to 100 tons of cheese pitch; and they also expressed the opinion that the same condition existed from that point up to the lake, embracing a stretch of land, say, 300 by 100 or more yards.

As to the depth of the pitch in this stretch of land, no one seemed to know. I apprehend that none of the excavations had gone to the bottom of the pitch.

Making due allowance for the offhanded character of the estimate given me and guided by my own observations, I think the following estimate of the several substances of this stretch of land may be put down as follows:

	Per cent.
Cheese pitch	95
Iron pitch	3
Coke-like substance	0½
Earth	1½

But even within this choice stretch there might be places where little or no pitch would be found. In this stretch I saw no signs of the burnt clay referred to hereinbefore, and I was told there was none. But there is another substance that is worthy of mention, on account of its character, though its amount, so far as visible, is insignificant. At Hadley's works, within 50 yards of the lake, a soft substance like tar oozes out of a bank of pitch. There is no bubbling water, as there is near the center of the lake, for it comes out of an embankment. It oozes out imperceptibly and flows down the bank like so much tar. I have a specimen of this substance and also of the "liquid" lake pitch now before me, which I obtained at their respective places of deposit. Both are sticky, but the "liquid" lake pitch is more grainy and has a more pronounced odor. The other is very much brighter than any Trinidad pitch I have seen, except the hard glance pitch, to which it almost exactly corresponds in point of brightness and color.

THE LAKE.

I beg to observe, in this connection, that, between the place worked by Mr. Hadley and a point clearly within the border of the lake, there is nothing in the topography that I could see to show the exact border of the lake. The first time I approached the lake from Hadley's works, one of the party, a resident of the neighborhood, said "the lake begins about here." This seemed quite probable from the general outline of the lake and the slope behind us, and I am satisfied the survey lines were "about here." While the color of the surface of the lake grows duller and less lifelike from the center (the "place of supply," I should say) outward, this change seemed no more pronounced at the spot in question than within the limits of the lake. I examined the spot in company with Mr. George Deffentaller, Mr. C. Maximie, and others, all of whom resided in the neighborhood, and not one could point out any boundary defined by nature. But the boundary of the pitch lake seems to be a puzzle even to experts. As observed before, Wall and Sawkins put the surface of the lake at 99 acres; subsequently the Government (acting, I presume, on Mr. d'Abadie's survey) rented out over 112 acres and had 5 acres to spare. Mr. Kernahan's survey (1886) puts the surface of the lake at 109 acres 9 perches.

THE ASPHALTUM PHENOMENON.

The economical capabilities of Trinidad asphalt are commented on by Wall and Sawkins as follows:

> #### ASPHALTUM.
>
> The occurrence of this substance, at least to the extent and in the forms assumed in Trinidad, is a natural phenomenon of some interest, and has necessarily received special attention during the examination of the island.
>
> * * * * * * *
>
> During the last half century numerous efforts have been made to find applications for the local bitumen, and especially by Lord Dundonald. Many of these will probably be eventually successful, but various difficulties have hitherto prevented the majority from coming into operation.
>
> While the bitumens of some countries, such as the asphaltic oil of Ava and Pegu, are stated to contain abundance of paraffin, the asphaltum of Trinidad, on the contrary, does not yield that valuable substance.* A number of oils with various adaptations can, however, be

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*According to the researches of chemists in the United States.

extracted from it, and this seems at present the most advantageous purpose to which it can be devoted. An American company has already established works at La Brea for the manufacture of lamp and lubricating oil. The former is extensively used in the colony, and appears to afford satisfaction, since it gives a rather intense light combined with great economy of the fluid. The lubricating variety is exported to the United States, where it is believed to be well appreciated. The manufactory of this company, not yet fully established, has produced during a portion of this year (1858) several thousand gallons of the oils.*

Another set of works has been erected for a French company, with the object of concentrating the asphalt by evaporating the water always contained in the substance, after which it occupies a much smaller space, and the freight is, of course, less. This is termed "boiled pitch," the specific gravity of which is 1.439, and that of the ordinary (including about 25 per cent of earthy matter), 1.298. The proportion of water removed amounts in the above case to 32.12 per cent. The material, after treatment, is sent to France, where it is applied principally in the formation of asphaltic pavements. The machinery employed in this process at La Brea is ingenious,† but the establishment of the undertaking is too recent to ascertain what amount of success is likely to attend it.

The applications in the colony have been principally for flooring and paving, but only to a small extent.

An advantageous employment would probably be in the production of gas, which is much required in Port-of-Spain and San Fernando.

The quantities shipped were:

Year.	Raw.	Boiled.	Total.
	Tons.	*Tons.*	*Tons.*
1857	1,650	150	1,800
1858 (11 months)	3,100	200	3,300

It must not be supposed from these figures that there is a rapidly increasing consumption of the article, as the demand is very irregular, and the quantities exported are influenced by the commanders of ships, who, finding no other cargo, take this at a low freight or on their own risk.

There is no market for the article in England, and it consequently goes to the United States and France, especially to the latter, where it is understood to be extensively employed for asphaltic pavements and as a mastic.‡

The price in Havre is from 50 to 60 francs per ton for the raw and 150 francs per ton for the boiled. The cost, placed on board the ship at La Brea, is $2.50 (12½ francs) per ton.

Asphaltum glance is a much purer variety, which, dissolved in oil of turpentine, is employed as a varnish; it has been found in sufficient quantities for exportation, and some of it of such quality as to realize over £20 per ton.

The source from which the material for shipping has been hitherto derived is the deposit or collection existing at La Brea Point. This is in process of exhaustion, and recourse must eventually (and before long, if the present rate of extraction continues) be had to the lake.

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*Since the above was written it is rumored that, in consequence of the difficulties attending manufacture in this country, the operations are likely to be suspended.

†It is said not to answer the expectations.

‡Dr. Ure says the asphaltic pavements in France are much superior to those constructed in England, which he attributes to the employment of natural bitumens, such as the asphaltic limestones, in the former country, while coal tar is generally used in the latter. He speaks very encouragingly of the applicability of natural bitumens to numerous useful purposes and evidently regards them as of much greater value in construction than the analogous artificial productions. (Dictionary of Arts.)

The term "inexhaustible," applied to the latter, has probably arisen from the circumstance of artificial cavities rapidly closing up, which may have led to the supposition of the substance being reproduced or generated as fast as removed; but it is essential to remember that every pound abstracted diminishes the remaining quantity by that amount.

One foot of depth contains for the whole area 158,400 tons. The real depth is probably very unequal; but if the average is assumed at 20 feet, the total deposit consists of 3,168,000 tons; if at 30 feet, of 4,752,000 tons. The latter is the maximum amount which can be expected to exist, a quantity which, should an exhaustive demand for the material arise, is by no means inexhaustible.*

The smaller masses of asphaltum occurring along the seashore or in the woods are usually mixed with a large proportion of earthy matter, and are consequently too impure to be serviceable; a small quantity may, however, be eventually obtainable from this source. The localities where liquid bitumens are exuding may also furnish some material.

A list of the patents for the application of asphaltum secured in Trinidad, and also some other propositions for its employment, is needed.

Patents and ordinances secured in Trinidad for the application of asphaltum.

Patentee.	Application.
A. A. L. Chocrane, captain in the royal navy.	Improvements in manufacturing artificial fuel.
Hiram Hyde	Improvements in the manufacture of mineral oils.
Frederick J. Swift	Improvements in the apparatus for manufacturing oil from asphaltum.
Hamilton Warner	Improvements in the manufacture of mineral charcoal.

There have been several patents taken out in England for the application of the Trinidad bitumens.

In a pamphlet,† entitled "Brief Extracts from the Memoranda of the Earl of Dundonald on the Use, Properties, and Products of the Bitumen and Petroleum of Trinidad," the following propositions for its utilization are contained:

(1) As a cement in the construction of piers, moles, breakwaters, sea walls, and shore defenses.

(2) As bituminous concrete in the foundations of lighthouses, bridges, and other hydraulic works.

(3) As a flexible, adhesive, bituminous compound for forming the joints of earthenware pipes.

(4) As a covering for galvanic wires.

(5) As pipes for the conveyance and distribution of water.

(6) As a perservative from rust and decay.

(7) For coating water channels in porous strata.

ANALYSIS OF ASPHALTUM.

The following report and certificate of analysis from Prof. P. Carmody, the Government analyst of the colony, in respect to both lake and land asphalt is worthy of consideration. It is proper to observe that the specimens he analyzed were exclusively of the cheese pitch.

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*The enormous consumption which substances useful in the arts has attained is shown by the circumstance of the production of coal, which now amounts to over 65,000,000 tons per annum in the United Kingdom alone.

† Ridgway, London, 1857.

CERTIFICATE OF ANALYSIS.

I hereby certify that the samples of asphalt taken in my presence on the 16th ultimo from the lake and district of La Brea have been analyzed by me, with the following results:

Sample.	Water.	Ash.				Loss on ignition, bitumen, etc.	Composition of dry asphalt.		
		Soluble in water.	Soluble in acid.	Insoluble.	Total.		Ash.	Loss on ignition.	
								Bitumen.	Other than bitumen.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
1	21.4	0.98	4.44	24.26	29.68	48.92	37.76	53.46	8.78
2	27.38	.9	4.04	22.44	27.38	45.24	37.7	55.42	6.88
3	26.46	.78	4.04	22.88	27.7	45.84	37.66	53.78	8.56
4	26.46	(*)	(*)	(*)	27.76	45.78	37.75	51.46	10.79
5	29.9	.48	4.7	21.5	26.68	43.42	38.06	51.36	10.58
6	26.42	(*)	(*)	(*)	29.4	44.18	39.96	53.07	6.97
7	26.36	.62	3.84	23.7	28.16	45.48	38.24	52.11	9.65

* Not determined.

Samples Nos. 1 and 2 were taken from different parts of the lake; the remaining samples were taken from deposits now being worked outside the lake. No. 1 is taken from the center of the lake, and is a soft pitch, locally termed "liquid pitch." No. 2 is the ordinary hard pitch of the lake.

Report appended.

P. CARMODY, F. I. C., F. C. S.,
Government Analyst and Professor of Chemistry
to the Royal and St. Mary's Colleges.

GOVERNMENT LABORATORY,
Port-of-Spain, Trinidad, May 4, 1892.

REPORT ON VARIOUS SAMPLES OF ASPHALT TAKEN AT LA BREA.

I specially visited La Brea on the 16th ultimo at the request of E. W. Packard, esq., for the purpose of having the samples referred to in the accompanying certificate of analysis taken in my presence and satisfying myself of their authenticity. Nos. 1 and 2 were taken from two different parts of the lake. Of the remaining samples, some were taken from deposits now being worked near the lake, some from deposits near the sea, and some from deposits between these extreme points; so that the above series of samples may be fairly regarded as representative of the whole of the present working deposits in the district.

From the accompanying results of analysis it will be seen that the samples are so similar in composition that for all practical purposes they may be considered identical in quality, suitable for the manufacture of paving material.

The composition of the ash shows that all these samples have had a common origin, for the presence of mineral matter in these asphalts can not under any circumstances be regarded as adventitious, since it is thoroughly incorporated with the bitumen in the same proportion and has the same percentage of composition, as regards the relative proportions of matter soluble in water in acids and insoluble substances, whether the samples be taken from the softest part of the lake itself or from any of the present sources of La Brea asphalt. From a personal knowledge of the local circumstance, the elevated position of the lake itself, and the comparatively lower levels of the other adjacent deposits, and from a careful study of the natural movement of pitch, I am of opinion that the pitch found in the beds outside the lake has been divided from the lake itself by the subterranean flow of the pitch in the viscous condition, a condition which it rarely assumes under the combined influences of heat and pressure.

P. CARMODY, F. I. C., F. C. S.

GOVERNMENT LABORATORY,
Port-of-Spain, Trinidad, May 4, 1892.

VENEZUELAN ASPHALT.

There are large deposits of asphalt being worked at Pedernales and also in the State of Bermudez, Venezuela. The former is in charge of Mr. N. F. Graham, representing a Caracas company, the latter in charge of Mr. A. H. Carner, representing a New York company. Both of these gentlemen are American citizens, and Port-of-Spain is made the base of their operations. At my request they favored me with the following statements:

STATEMENT OF MR. GRAHAM—PEDERNALES ASPHALT.

PORT-OF-SPAIN, *May 7, 1892.*

Hon. W. P. PIERCE,
United States Consul, Port-of-Spain.

SIR: In reply to your questions, I will state that the pitch lake of Trinidad can be exhausted in time. Since the year 1884 to the present date the level of the lake has lowered in the center about 3 feet. I do not say that this is altogether due to digging out the pitch from the lake itself, but also from its surrounding parts as well. As the pitch is dug out from around the outside of the lake the center gradually settles. The parts excavated fill up, not from the bottom of the excavation, but from the sides. The pitch is constantly in motion, and will stop nowhere until it gets its level.

My opinion, as regards the pitch lake proper and the pitch on the outside, called the "overflow," is that there is practically no difference between them. The center of the lake contains more volatile matter, which is not essential for road making, as all the light, volatile matter has to be evaporated before it can be used for this purpose. The difference with the outside pitch lies in its having been exposed more to the sun and all the light oils have evaporated, water taking their place, consequently it is harder than the pitch in the center of the lake. The virtue of the asphalt on the outside (by outside I mean both the outer parts of what is commonly called the "lake" and the pitch adjoining, commonly called "land pitch") is not destroyed in anyway.

My opinion as regards the "overflow" pitch is that there has been a series of small volcanoes, or what are generally known as "pitch holes," in action that have covered the surface with pitch, and have gradually closed up with the heavier flow from the center; hence the cause of the soft pitch being mixed up with the hard pitch on the outside, there being, in my opinion, two kinds of "land pitch," aside from the small quantity of what is called iron pitch.

In comparing the Trinidad and Venezuelan pitch, I find no difference between what is called "liquid lake pitch" and the Venezuelan pitch. The Trinidad deposit is much older than that of Venezuela. I do not think, as many persons here state, that the source of the Trinidad pitch is in Venezuela. I think that there is no connection whatever between the one pitch deposit and the other.

The pitch in Venezuela varies very much in hardness and in quality, but not more so than that of the pitch lake in Trinidad. There are vast deposits in Venezuela. In Pedernales there are vast deposits, and also in the State of Bermudez; the latter are now being worked by the New York and Bermudez Company. The pitch worked by the New York and Bermudez Company, and also the Pedernales pitch, is of superior quality to that of Trinidad. There are also many small deposits of pitch in the island of Trinidad. Chemically there is no difference; if anything, the pitch at Guapo and other places in Trinidad is richer in bitumen than the La Brea pitch.

The asphalt deposits worked by the Compañia Anónima Minas de Pedernales are extensive, and are on the island of Pedernales, to the southwest of Trinidad and about 16 miles therefrom. The asphalt mine is situated near the mouth of the Pedernales River. The river at the place where the mine is located is a mile and a half wide, having a depth of water on the bar of 16 feet at low tide and 21 feet at high tide. The channel is about a mile wide. We have works for refining the asphalt on the spot, and do not ship crude. We also have a wharf at which any size of vessel can go alongside and load; also a tramway that runs from the wharf to the works, which are away from it about 400 yards; also tramways on all parts of the lake which are being worked.

The following is a letter I received from Mr. A. Urich, PH. D.:

"TRINIDAD, *September 8, 1887*.

"N. F. GRAHAM, Esq.

"DEAR SIR: The sample of boiled pitch you sent me for analysis contains—

	"Per cent.
"Hydrocarbon (soluble in benzole)	94.55
"Moisture, loss at 212° F.	3.15
"Mineral matter	2.14

"The pitch is exceptionally rich in hydrocarbons, and contains but very little foreign matter.

"Yours, most truly,

"A. URICH, PH. D."

Subsequent to the date of the foregoing letter Dr. A. Urich was acting as Government analyst of Trinidad, and while acting as such he gave me an exhaustive report or analysis of the asphalt and oils of Pedernales, which, I am sorry to say, I am unable to hand you to-day, as it is at the head office of the company at Caracas.

I have, etc.,

N. F. GRAHAM,
Superintendent of the Compañia Anónima
Minas de Pedernales, Venezuela.

STATEMENT OF MR. CARNER—BERMUDEZ ASPHALT.

PORT-OF-SPAIN, TRINIDAD, W. I., *May 24, 1892*.

HON. WILLIAM P. PIERCE,
Consul of the United States at Trinidad, W. I.

DEAR SIR: In reply to your inquiry in reference to asphalts of Trinidad in particular, and of the immediate vicinity in general, and also to you kind offer to allow me to contribute my "mite" of knowledge upon the subject, I beg to state that for obvious reasons I feel constrained to refrain from offering personally any comments in particular with reference to the merits or demerits of Trinidad asphalt, or, as it has become recently distinguished, Trinidad "lake" asphalt, but prefer to offer, as being of much greater value for your purposes, some extracts from a statement upon this subject recently published by Prof. E. J. De Smedt, who, it is stated, is the original inventor of the asphalt pavements as now laid in the United States, and who was for nine years the chemist and official inspector of asphalt pavements and hydraulic cements at Washington, D. C.

The fame of Prof. De Smedt upon the subject of asphalts is sufficiently well known both in the United States and Europe to need no further comment from me. He says, in a comparative test for quality and purity of Trinidad lake asphalt and Bermudez asphalt (regarding the latter of which I will refer to more particularly later on), as follows:

“An analysis of best Trinidad lake refined asphalt by Clifford Richardson is as follows:

	“Per cent.
“Bitumen soluble in CS_2	55.6
“Organic and inorganic matter (impurities)	44.4
“Total	100

“At 400° F. it gives no flash.

“Analysis of Bermudez refined asphalt by E. J. De Smedt is as follows:

	“Per cent.
“Bitumen soluble in CS_2	97.86
“Organic and inorganic matter (impurities)	2.14
“Total	100

“At 400° F. it gives no flash.”

In regard to softening points, the two varieties are again compared at the respective degrees of temperature as indicated:

Description.	Trinidad lake.	Bermudez.
At 60° F.	Hard and brittle	Compressible.
At 75° F.	Can be slightly bent	Viscous and malleable.
At 100° F.	Does not flow, but is easily bent	Flowing, and can be stretched in hair-like threads.
At 189° F.	Flowing point	Melted.

In connection with this he adds that, “everything else being equal, the lower softening points of an asphalt increases its quality proportionately. This is admitted by the chemist and inspector of asphalts and cements of the city of Washington, D. C., in his annual report of 1891, and it is also generally admitted by all experts and chemists who have made a study of asphalts for paving purposes.”

With reference to the oiling or manufacturing of asphaltic cement, he makes the following statement:

“According to the annual report of the inspector of asphalts and cements of Washington, D. C., 14.71 pounds of oil are added to each 100 pounds of crude Trinidad lake asphalt. This 100 pounds of crude Trinidad lake asphalt yields a maximum of 40 pounds of pure bitumen; consequently 26.88 per cent of oil is added to the pure bitumen.”

With the Bermudez asphalt, “15 pounds of residuum oil, 20° Baumé, at 60° F. is added to each 100 pounds of refined, and this 100 pounds of refined asphalt yields 97.86 pounds of pure bitumen; consequently only 13.3 per cent of oil is added to the pure bitumen.” This is manifestly an advantage to the consumer, for Prof. De Smedt goes on to say: “I agree with the inspector of asphalts and cements of Washington, D. C., in the statement in his annual report ‘that an increase of residuum oil is undesirable,’ and I will add that it is detrimental, as the quality of an asphalt is reduced in the ratio of the percentage of increase of oil used.”

In continuing his comparative tests of the two varieties in question to the practical point of pavements, Prof. De Smedt arrives at the following results:

“Analyses show that when 15 per cent of Trinidad lake asphalt cement has been employed only 10 per cent is found. This is a proof that one-third of it is impurities and is actually a waste product.” And, on the other hand, “analyses show that when 10 per cent of Bermudez asphalt cement has been employed, 10 per cent is found. This is a proof of its purity. One square yard of pavement 2½ inches thick weighs 250 pounds. Fifteen per cent Trinidad lake asphaltic cement equals 37½ pounds per square yard of pavement; it will thus be seen that only 53⅓ square yards of pavement 2½ inches thick are manufactured from 1 ton of Trinidad lake asphaltic cement. Ten per cent Bermudez asphaltic cement equals 25 pounds per square yard of pavement; it will thus be seen that 80 square yards of pavement 2½ inches thick are manufactured from 1 ton of Bermudez asphaltic cement."

So much has already been written and published in reference to the asphalt deposits of Trinidad that I believe any further remarks upon the subject from me would be entirely superfluous; but, after the foregoing statements, it may perhaps be of interest to your readers to learn something concerning the "Bermudez" asphalt, which takes its name from the State of Bermudez of the Republic of Venezuela, and within the boundries of which a large deposit of asphalt was discovered some years ago. This immense and inexhaustible deposit of asphalt is more popularly known as an "asphalt lake," since it is constantly, but almost imperceptibly, in motion. Its area covers more than 1,000 acres, and its depth is unfathomable. The ownership of it was acquired by purchase from the Venezuelan Government by the New York and Bermudez Company, of which your writer has the honor to be the manager. The company was organized under the laws of the State of New York, and it maintains its head offices at Nos. 55 and 57 Beaver street, New York city, where all inquiries concerning the asphalt or other products of the company may be addressed. The original purpose of the company was to carry on a general trading and developing business in the natural products of a large territory within the borders of the State of Bermudez, under a concession acquired from the Venezuelan Government, and subsequently acquired by purchase the asphalt deposits, as already stated.

The securing of this asphalt in marketable quantities has taken several years of untiring labor and a large expenditure of capital, owing to the great physical difficulties necessary to be overcome. The lake is now connected by a narrow-gauge steam railroad with a shipping depot, where several vessels with draft of 18 feet can be loaded at the same time. The purity and quality of the asphalt is exceedingly high and is not equalled by any other, as shown in the foregoing comparative statements with the Trinidad lake asphalt, which heretofore has been considered the best.

The phenomena of asphalt lakes is for the sightseer a novelty for the moment, but for those of an investigating mind it furnishes a field for study which is by no means exhausted. It remains for a Tyndall or a Fresenius to tell us all about it. Your writer has lived in close association with it for more than six years and has only learned that he knows nothing about its phenomena.

Commercially its usefulness seems to be well established, but principally for street pavement, its superiority over all other materials for that purpose being almost universally accepted; but even in this sense its field of usefulness seems to your writer to be almost untouched. It is to be hoped that, like kaolin, aluminium, phosphate rock, and many other of the earth's treasures, its true value and usefulness will be speedily learned.

With the hope that I have been able to throw some additional light upon the subject of your inquiry that may be of some service to you, I beg to remain, etc.,

A. H. CARNER.

SUPPLY OF LAND PITCH.

It is about as difficult to estimate the supply of the land pitch at La Brea as it is to estimate the lake pitch. W. O. Crosby, from whose article I have already quoted, makes this observation:

> In fact, its [the lake's] appearance is as if the broad-mouthed crater of a low-lying volcano were overflowing with sluggish streams of black lava slowly creeping down toward the sea. These slowly moving masses present curved lines and convex surfaces, and Canon Kingsley has very aptly likened them to glaciers, the lake representing a *mer-de-glace*. The asphalt becomes harder the longer it is exposed to the air and sun, and consequently the downward progress of the "black glaciers" must constantly be checked, if not entirely stopped. It seems impossible to determine the extent of the overflow, for, although the en-

tire slope from the lake to the sea appears as a continuous sheet of pitch, yet it is possible that most of this has extended from the asphaltic sandstone beneath it. The area covered or underlaid by this mantle of pitch is estimated at 3,000 acres.

As I have stated, I do not know when this article was written, but at the present time there is not a "continuous sheet of pitch," as stated, between the lake and the sea. As a general rule, the passer-by sees nothing but an ordinary stretch of land, except in places where the land has been dug off exposing deposits of asphalt; or except, further, he sees what is called "croppings," that is, bowlders or ridges of asphalt creating furrows on the surface of the soil, and which Wall and Sawkins consider "not evidences of flowing, but due to constant expansion and contraction, as well as the effects of traffic." But while the "black glaciers" do not now cover so great a surface they are probably found in larger quantities under the surface than the writer thought. At any rate, his statement conveys a general idea of the vast quantities of asphalt deposited in and about La Brea, and when Wall and Sawkins wrote of the "smaller masses of asphaltum occurring along the seashore or in the woods," those masses were not so much unearthed as now, and I apprehend those eminent scientists did not fully appreciate their extent. It seems reasonable to assume that there is as much La Brea asphalt outside of the lake as inside of it. The area (3,000 acres) given above is probably excessive. One-half that area is believed to be more correct. Assuming, then, that there are 1,500 acres, and that the asphalt therein will not run, on an average, lower than 10 or 12 feet, and that only 20 per cent of this total excavation would be asphalt, the result of the calculation would show an amount of asphalt as great as can safely be expected to be obtained from the lake. But this is very speculative. In some places the earth is 10 feet above the asphalt; in others the asphalt is "cropping" out of the surface of the earth. Some of the excavations have produced asphalt 30 or 40 feet below the surface; and of the total substance excavated from some of the pits over 95 per cent has been asphalt, while the yield in others has not been more than 5 per cent, if that. Altogether, however, I am inclined to surmise that there is more La Brea pitch outside of the lake than in it.

A gentleman who has special advantages to study the situation at La Brea favors me with the following figures, but I must again say they are very speculative:

	Acres.
Asphaltic lands north of the lake	400
Asphaltic lands south of the lake	50
Asphaltic lands east of the lake	700
Asphaltic lands west of the lake	50
Total	1,200

Other estimates are not more than one-half as large as this total.

It is proper to observe that the great body of land in the island is known as "Crown land," belonging to the colony, and Crown lands (unless specially withheld from sale, like the pitch lake and other asphaltic lands at La

Brea) are obtained at public auction, the Government, on request, putting it up to the highest bidder, but not accepting any bid under £1 per acre, except in special cases, as in case of swamp land. I also beg to observe, in a general way from hearsay, that of the 1,200 acres of land estimated above 1,100 belong to or are under lease by the Trinidad Asphalt Company (all undisputed except amounts aggregating probably 10 or 12 acres); about 30 acres are undisputed Crown lands; about an equal number (of which Turnbull, Stewart & Co. own and have charge of about one-half) are undisputed private lands; and the remainder (say 40 or 50 acres), which embraces all of the rich stretch of land referred to, are in dispute between the Crown and various individuals.

It should be noted that, while some or all of these several parcels of undisputed private lands may be under lease, I am of the opinion that very few, if any, of them at present are under the management of the Trinidad Asphalt Company, unless the lands owned and supervised by Messrs. Turnbull, Stewart & Co. be an exception. It may be thought I am indulging unnecessarily in detail; but the fact that the colonial Government, in compliance with its contract with the Trinidad Asphalt Company, will not grant permission to take asphalt from the Crown lands for exportation, and the agent of the Trinidad Asphalt Company will not sell lake asphalt for exportation to the United States, though he sells it without hesitation for exportation to Europe, makes it proper that this report should show as explicitly as possible the supply not under the restraints mentioned.

In respect to the disputed Crown lands—involving, it would seem, a number of claimants—it would require more investigation than the point is worth to give a tolerable idea of the merits of the claims, each of which, of course, stands on its own merits; but the presumption is that the supply of asphalt from claims disputed by the Crown will be considerable for some time to come.

In this connection, I beg to observe that I am in doubt as to what decision is referred to by the inclosure to the Department instruction calling for "a copy of the recent decision of the law court in some asphalt cases dissolving an injunction against certain parties for removing asphalt from certain lands improperly." But I inclose a newspaper clipping, which gives an important opinion of the chief justice, which may set forth the decision referred to. In order to show the feeling that seems to exist between the chief justice and the chief law officer of the Crown in respect to these asphalt cases, I beg here to quote from this opinion and from the remarks, as published, of the attorney-general at a late meeting of the legislative council.

In an action to restrain the defendants from digging pitch, pending an action against them for damages for digging it, the chief justice, in giving judgment, January 11, 1892, said:

> I feel strongly it is an application to cripple an adversary rather than to do anything that is necessary for the preservation of property or the keeping of things *in statu quo* until the

trial, and the court ought to be very careful how it allows its great and extensive powers to be made use of by one litigant as a weapon against the other, and especially by the richer litigant for the purpose of tying the hands, as it were, and shutting the mouth of his poorer adversary.

We have heard, moreover, over and over again, in the course of these long discussions in the pitch cases, that the object of the Government raising suits and passing ordinances to restrain persons from digging on lands alleged to be Crown lands is to prevent competition in the American market against the pitch of the Trinidad Asphalt Company. This must necessarily, therefore, be the object of the Trinidad Asphalt Company itself, which applies for injunctions in some of the cases; and the person who, by his affidavit, supports the case of the plaintiff here, whether he be a real or nominal plaintiff, is the local manager at La Brea for the Trinidad Asphalt Company.

Now, a court of justice can not permit its process to be used to further interests of that nature.

It can not but be clear to everyone that the injunction is the chief end and aim of raising these actions. No one, unless he had such an end in view, would have ventured to come to a court having equitable powers and to say, in effect: "I have no title to my lands in the way of deed or grant or conveyance of any description, and I have not had a sufficiently long possession to enable me to claim a title by possession; but upon that possession, insufficient as it is, I claim an injunction against the ostensible owner, in order that he, at least, may not make use of the property, and that will prevent him competing with me in the open market in my commercial undertakings." That is, in effect, the position of the plaintiff and what he demands here, and it is not for the protection of such objects that the courts exercise their powers of injunction. For the preservation of property the court will use its power when satisfied that that is the true object of the plaintiff, and when the plaintiff shows at least a prima facie case that he can sustain; but I am not satisfied that the preservation of property is the real object of this application, and prima facie the case of the plaintiff seems a very shadowy one. In my opinion, therefore, the interlocutory injunction must be dissolved.

On the other hand, the attorney-general moved in the legislative council, April 4, 1892, the first reading of an "ordinance for the better protection of lands claimed to belong to the Crown," and his remarks, as published in the Public Opinion of April 8, 1892, are in part as follows:

The attorney-general said as attorney-general of the colony it was his duty to defend the property of the Crown colony. He had waited a long time and had tried all the ordinary means to protect the property of the Crown. He had found very strong cases prima facie in favor of the Crown; cases of land which, according to the records of the Crown lands office, had never been parted with by the Crown; cases in which land from Spanish times until now had been natural savanna at La Brea; cases of valuable land which had been leased by the Crown to Lord Dundonald and were again leased to Lord Dundonald for another term of years; and in the immediate vicinity he saw land which was natural savanna which to-day was subject, not to one, but to a dozen, claims. There was no record of their titles, nor was there any record of their paying one atom of taxes. He had found a bona fide title on behalf of the Crown, and he, as a lawyer, said that these were fit and proper cases to be tried if ever there were any; titles which he would issue his fiat for. A very wide and proper discretion was given to him as attorney-general; he had to decide whether or not a man could be brought to trial, and he said "now there is a genuine title which ought to be tried on behalf of the Crown." Were they going to deprive him of the right which he possessed? It was not for him, and he would not for a moment criticise the court; but in the courts it had been practically held by two of the judges, as a reason why an injunction should not be granted, that the pitch after being dug out welled up again. There was valuable property to be protected, and he maintained that was no argument; and, as the Crown was refused protec tion of its property, he thought there should be a statutory injunction which would protect the property of the Crown until the hearing of the case. He had not applied for any rights to the Crown which the Crown had not before. If the council did not help him in this way, thousands of pounds would be going from the colony—it was going every day. Great masses of pitch were being taken from Crown lands, as they were believed to be, and which they were prepared to go into court and prove to the best of their ability. He had asked them to give the Crown nothing but what it had before, and he only asked them to give it in cases where people had stood by on their rights for three years in respect of that land. It was not for a long period he wished to have these injunctions, but until the question of title had been tried. Because action of this kind had not been taken before, immense damage had been done to the concession; and the colony was losing property at an enormous rate if the Crown was right in its contention. The only alternative which the executive had was one which he had hesitated to advise—if the council would not approve of the ordinance and say the Crown must be protected by the courts, there must be an appeal to force—that was the alternative unless the principle was assented to by the legislature. He asked honorable members not to throw out the ordinance at that sitting, for it was absolutely necessary.

COMMERCIAL HISTORY OF LA BREA PITCH.

The tenth Earl of Dundonald seems to have been the first to bring Trinidad pitch into commercial notice. In the year 1851 he leased for twenty years a large part of the lake and some of the adjoining asphalt land, and in 1865 assigned his lease to a joint-stock company called the Trinidad Petroleum Company (limited), organized with the view principally to distill petroleum out of the asphalt. This company, which seems not to have been prosperous, went into liquidation in 1866. Mr. Thos. A. Finlayson was its manager here, and, it seems, succeeded to its leasehold rights and continued shipping pitch, presumably from the lake.

In the meantime other shipments were made extending back into the fifties. Wall and Sawkins, writing in 1858, state that "the source from which the material for shipping has been hitherto derived is the deposits or collection existing at La Brea Point." The Messrs. O'Connor Brothers shipped more or less pitch annually from 1862 to 1866, inclusive, and some little thereafter, and I am informed by Mr. Masson, merchant, then clerking for them, that the pitch they shipped—almost exclusively to Havre and Marseilles—was dug principally, if not altogether, from the pitch banks at Point La Brea, and that it is also his recollection that this pitch was satisfactory to the consignees, except one cargo, which was complained of as containing too much earth.

In 1871 the then governor concluded to lease the unleased portions of the lake, as well as the remainder when the existing leases terminated, in lots of only 5 acres each, and accordingly, in January, 1871, the following regulations were promulgated:

SPECIAL REGULATIONS FOR THE SALE AND LEASE OF CROWN LANDS FOR THE PURPOSE OF EXPLORING AND TAKING THEREFROM PITCH, PETROLEUM, MINERAL OILS, ETC.

PITCH LAKE.

(1) The following rules will be observed in respect to the portion of the pitch lake now in the possession of the Crown and tr the remainder of the lake when the existing leases terminate.

(2) The surface of the lake will be divided into lots containing as nearly as possible 5 acres each.

(3) Every lot will be leased for a period of fourteen years.

(4) The rent of each lot will be at the rate of £2 per acre, payable yearly in advance.

(5) The leases will not be transferable without the consent of the governor, and no lessee will be allowed to sublet the whole or any part of his allotment without such consent.

(6) The leases of the lots will be drawn up in a form to be approved of by the governor.

(7) Every lot will be leased subject, when necessary, to a right of way not exceeding 12 feet in width across the lot, to afford access to other lots.

(8) Every lessee will be entitled to a renewal of his lease for a second period of fourteen years at the same rent, without the same being put up to auction, if he shall prove to the satisfaction of the governor that he has raised and exported during each of the last seven years of the lease 500 tons of pitch, or its equivalent in articles manufactured from the produce of the lake.

(9) Lessees may at any time resign their leases.

(10) The leases will be put up to public auction at the Crown lands office in Port-of-Spain.

(11) One month's notice of each sale will be given.

(12) The leases will be put up for sale at the rent and on the conditions hereinbefore named, and the biddings will be as a premium for each lease, and the amounts offered are to be paid at the time of sale.

(13) Every lease will be absolutely forfeited if the same be assigned without the consent of the governor, or if the rent be not paid within three calendar months after the day on which it shall become due in each year.

(14) Every existing lessee of a portion of the lake shall, upon the expiry of his present lease, be allowed to take a lot on lease under these regulations without competition, if he desires to do so.

MINERAL LANDS.

(15) Any person desiring to search over the Crown lands for petroleum, mineral oils, or coal shall transmit to the subintendant of Crown lands a petition addressed to His Excellency the governor, stating the tract of Crown land over which he is desirous of searching.

(16) Upon such petition being presented and approved by the governor, and upon the payment of a fee at the rate of 1*s.* per acre, license will be granted to the applicant to occupy the land named in the license for one year, with exclusive power to search in any part of it for petroleum or other mineral oil or coal, to set up works, sink wells, and export the produce, subject, however, to the payment of such rates and duties as may be imposed by law upon such produce.

(17) The tract of land to be included in each license will not, except in special cases to be determined by the governor, exceed 2,000 acres.

(18) At the end of the year for which the license has been granted the licensee shall have the privilege of purchasing, at the upset price of Crown land for the time being, without competition, as much of the land as he may require for the continuance of his operations, not being less than 160 acres.

(19) All expenses of survey and fees of grant must be paid for by the applicant.

(20) The licenses will not be transferable without the consent of the governor.

(21) Special licenses will be granted to all persons purchasing Crown land to take coal therefrom and from the adjoining lands (if power for that purpose be given) upon payment of a royalty of 6*d.* per ton on all coal so taken.

(22) These licenses will be issued for five years only, but will be renewable for twenty-one years more if the licensee shall prove to the satisfaction of the governor that during the said period of five years he has raised or taken from the land named in the license 5,000

tons of coal. The renewed licenses will be liable to forfeiture by the governor if a certain quantity of coal, to be hereafter named by the governor, shall not be raised or taken annually during the continuance of the license.

By order of the governor.

MANUEL SORZANO,
Secretary to the Intendant.

JANUARY 16, 1871.

Under the operation of these general regulations the entire lake, with the exception of one 5-acre lot, reserved by the Crown, came under the control of four lessees, to wit, C. F. Stollmeyer, George R. Field, Thomas A. Finlayson, and the firm of Previté & Greig, of London, all of whom (with the exception of the last named) were lessees at the time the new regulations were promulgated. And I think it probable that Messrs. Previté & Greig (who were the London agents of the defunct petroleum company) were interested in the leasehold succession of that company in connection with Mr. Thomas A. Finlayson. Under the construction put upon the regulations nothing seems more natural than that the lake would fall under the control of the lessees existing at the time the rules were promulgated. As construed, those lessees not only had the right to take a 5-acre lot each at £2 per acre (which made it impossible for others to create a monopoly without their concurrence), but allowed them to purchase other lots at public auction. And the fact that Mr. Thomas A. Finlayson purchased at public auction several of the 5-acre lots, when one lot would furnish as much pitch as a dozen (by the excavations refilling), leaves little room to doubt that his object was to prevent pitch reaching the market through other hands. That a monopoly of the lake pitch would follow such an arrangement needs no further proof. Exactly when the monopoly went into effect is more difficult to determine; but in one of the statements of Mr. Finlayson it appears that "efforts to increase the mercantile profit derived from the said demised premises" were made without success prior to 1877, "owing, as I believe," said he, "to the inadequacy of the protection afforded by the said leases." But while Mr. Finlayson and the other lessees controlled the market of the lake pitch, they had formidable competition from shipments of land pitch by Mr. John G. Douglas, lessee of Point d'Or, and by the West India Shipping Company, which owned the asphalt land of Bellevue.

It was not till the winter of 1879–'80 that all these conflicting interests were united. Mr. A. L. Barber and his associates had lost money in the street-making business in Washington city in 1879, and, with a view of protecting himself and his associates from undue competition, he visited Trinidad in December of that year for the purpose of reconciling the divers interests to united action. His efforts were successful.

Things thus fixed seem to have run smoothly till 1886, when the colonial Government decided that the 5-acre lot, referred to above as having been reserved by the Government, should be thrown open to the market by granting licenses to dig pitch therein. When it is borne in mind that this

5-acre lot could furnish as much pitch as the remainder of the lake, the discomfort of the lessees and their associates can well be imagined. The most vigorous action was taken to defeat the issuing of these licenses. The matter was taken to the privy council, but the decision of the colonial authorities could not be set aside. By this decision the lessees and their allies were reduced to the necessity of doing business without "protection" or quitting business or making other arrangements with the Government. The latter course was adopted. And here the superb ability of Mr. A. L. Barber again showed itself. He brought about a concession of the lake for twenty-one years, and subsequently succeeded in having the same extended for twenty-one years longer. A careful reading of the extracts from official papers will not only give a clear idea of the negotiations, but will throw more or less light on the conditions of the Trinidad asphalt trade and industry.

PAPERS RESPECTING THE CONCESSION OF THE PITCH LAKE.

As a result of conversations between Mr. Barber and the under secretary of state for the colonies, Mr. Thomas A. Finlayson, a member of the Trinidad legislative council (interested with Mr. Barber in the enterprise), submitted to the governor, under date of February 1, 1887, a proposition to the effect, in general, that the Government concede to "the New York and Trinidad Asphalt Company and Messrs. Previté & Greig, merchants, of London," the pitch lake for twenty-one years; that in that time no pitch is to be taken from Crown lands under form of lease, license, or otherwise; that the Government is to maintain a duty on exports of raw asphalt of 6*s*. 8*d*. per ton, whether such asphalt be won from the lake or elsewhere in the island; that concessionaires are to export 30,000 tons per annum (1 ton of *épurée* counting for 1½ tons of raw), and to pay £10,000 in advance yearly as and for this export duty, and to pay the same duty per ton on any excess of 30,000 tons yearly exported by them; that, at the expiration of the twenty-one years, the Government is to have the alternative to take the improvements "on payment in cash of their fair appraised valuation of £5,000" or to grant an extension for ten years more upon the same terms, the improvements then to become the property of the Government.

Messrs. Previté & Greig, under date of February 22, made the following points in favor of the above proposition:

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We call your attention to the following points:

(1) Asphalt, as a paving, has to compete with macadam, granite cubing, and wood. None of these powerful competitors require machinery to lay them in roadways; the process employed is simple. Asphalt, however, requires expensive machinery—crushing mills, boilers, refineries—all machinery which is quickly worn out. Asphalt will not boil at 212°, and the action of fire to melt it destroys the boilers rapidly; consequently the outlay for plant is heavy. With any liability of competition in Trinidad asphalt, no solid, reliable firms or companies will erect a number of refineries, build crushing mills, etc. Each set of works is erected for a special city or district, in order to carry out the asphalt work in such city or district. As we told you verbally, the Barber Asphalt Paving Company in America has held its hand since the privy council decision. It has erected no new works, but has just sought asphalt

paving contracts for 1887 where it has works. Nor has that company ordered a ton of Trinidad asphalt since October last. The fear that men not acquainted with the trade, merely because Trinidad asphalt is free, may rush in and compete paralyzes the action of the Barber company, and has decided them to erect no fresh works. The cost of their plant, premises, etc., in New York, set up only last year, was $85,000, or £17,000.

(2) Our object for the past sixteen years has been to keep prices low to encourage the asphalt trade. We were called monopolists, but we never asked high prices, because of the competition asphalt has to encounter from wood, granite, etc., and the heavy outlay for works. This will continue to be our object if the proposals to lease the entire lake are accepted by Her Majesty's secretary of state for the colonies. We should never have increased the trade from 3,700 tons in 1870 to 36,000 tons in 1886—the period during which we were "monopolists"—unless we had fostered the trade, run heavy risks, and always supplied the asphalt paving companies at a low price. We protected them while we protected the trade in Trinidad. The business yet to be done in America is enormous, but it entirely depends on how the Trinidad supply is regulated.

We venture to submit that this is very similar to the protection given by Parliament here to a gas company. Its works and mains, etc., are protected, or no sensible man would build gas works if he were liable to have his outlay rendered valueless by competition.

(3) Further, each sort of asphalt requires separate and special handling. The Limmer asphalt mines, in Germany, are only at the disposal of the Limmer Paving Company, of England, for work here. The Val de Travers asphalt from Switzerland is alone worked in England by the one company. It is precisely the same in Paris. In like manner, Trinidad asphalt requires its special handling—its experts. Its reputation suffered greatly when Princes street, in the city, was laid in 1871 by Trinidad asphalt and broke to pieces in six months and was taken up to be replaced by Val de Travers. If unskillful people use the Trinidad again, the same injury would happen; and if all the good asphalt rocks of Europe are only intrusted to the hands of skillful men, why should Trinidad be exposed to the risk of failure? This is really a most important point.

(4) As the trade in Trinidad is "a going concern," which has been checked since the privy council decision, it is of great importance that a decision as to the new proposal for leasing the entire lake should be taken promptly. We may mention as a reason (*inter alia*) that the Barber Asphalt Company had leave from the city of London corporation to lay a sample piece of their pavement (500 square yards) in Aldersgate street last November. The company resolved not to incur the outlay when the directors saw that Trinidad asphalt might be free to all. Prior to this they had already engaged to spend £12,000 in laying their pavement in Paris and Berlin, but their whole business is stopped.

* * * * * * *

P. S.—We beg leave to inclose a copy of a letter written to us by Mr. A. L. Barber, dated December 15, to show you that the largest consumer of Trinidad asphalt is willing to pay a higher price if necessary to secure protection.

Mr. Finlayson wrote the subintendant of Crown lands March 31, 1887, as follows:

I have the honor to acknowledge the receipt of your letter of 28th current, informing me that the secretary of state has conveyed to his excellency his opinion that it would, on the whole, be for the advantage of the colony to accept the proposal made in my letter of the 1st of February last about the pitch lake, provided that the exclusive right to win pitch be limited to the pitch lake.

In reply, I have to request you will inform his excellency that the concession, if so limited, will be practically of no value.

We proposed that, for the large annual minimum sum of £10,000 which we offer to pay, the Government should concede to us the exclusive right to win asphalt from the pitch lake for twenty-one years, and during the continuance of that term should not grant to others the right under the form of lease, license, or otherwise to take asphalt from the pitch lake or from any Crown lands.

The Crown lands in the vicinity of the pitch lake have large deposits of pitch easily obtainable and equal in quality to the lake pitch. To concede to us the right to win asphalt from the lake and at the same time to retain the right to allow the public to obtain asphalt from the Crown lands in the neighborhood of the lake is to deprive the concession to us of all value.

You will observe that we do not ask the right to win asphalt from those lands, as we have done with regard to the pitch lake. We merely ask that, in effect, the Government shall not allow others to do so.

I am quite willing to modify my proposal to meet the case, and now propose that the Government shall not grant to anyone the right to win asphalt from any Crown lands within 3 miles of either side of the lake, and, if this be approved, I am willing to abide by the terms of my proposal of the 1st of February last in all other respects.

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Under date of August 1, 1887, Mr. Barber wrote the attorney-general of Trinidad, in which he said:

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(2) In July, 1878, my attention was first called to De Smedt's processes of making an artificial asphalt pavement in imitation of the rock asphalt of European cities, and soon after I, with others, undertook our first contract in this city, having successfully defeated the efforts of other parties to continue the use of coal-tar products in such work. I purchased our first supplies from Mr. E. Burgess Warren, who had bought the same from the agents of Mr. Finlayson. In the spring of 1879 I bought from Mr. John G. Douglas a cargo of *épurée*, which had been lying on a wharf in this city for many months, at a price much below cost to him, he having been unable to find any purchaser. I also entered into a contract with him to furnish us with pitch for a term of five years, with the option of renewing the contract twice for similar periods, being the entire term of his lease of Point d'Or.

Having induced the authorities of this city to lay more of De Smedt's pavement, in the spring of 1879 we took, at a public letting, 104,000 square yards of work at the lowest price named by several competitors. Upon completing the work we found that it had cost us over 10 per cent more than the amount paid us therefor.

(3) In the light of this experience, the conviction was forced upon us that we must either find some way by which we would be protected from undue competition or else we must give up the business; and in December of that year I visited Trinidad for the purpose of reconciling the diverse interests to united action. From Trinidad I went to London for the same purpose. My efforts were successful. Every existing interest, active or undeveloped, was duly considered, and every person having any actual connection with the business was consulted and easily induced to pull together with all the rest in a united effort to promote the common good of all concerned. No one was excluded who had any tangible interest in the trade.

(4) Under the arrangements thus inaugurated greater economy in handling shipments was secured, because the expenses of managing the business were reduced, and a reasonable margin of profit, and that only, was secured to everyone according to his position and rights, while the real promoters were encouraged to push the trade and so increase the shipments. In short, producers and immediate consumers were united into a great coöperative establishment. As to ultimate consumers, viz, the cities and people adopting the pavement, no unfair advantage was or could be taken of them, since no one could compel them to adopt the pavement against their will, nor could they be persuaded to give it preference, except at such prices as seemed right and fair in competition and comparison with pavements of wood, stone, tar and concrete, and macadam. Indeed, the great difficulty is to convince people that they will get good work, the price being a matter of secondary consideration.

(5) In 1882 I introduced the pavement into two or three cities, and each year has added to the list, until now we have established works in nineteen cities of the Uuited States. Other companies, in which I have no interest, but which have been working in accord with us, have been organized and are working successfully in many more, all of them being willing and glad to purchase their supplies of asphalt under the existing arrangements, giving them reasonable security in their business, which otherwise would not be worth anything.

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(12) It may be affirmed that other causes have operated to create this remarkabe difference. Nevertheless, I maintain and assert positively that over 80 per cent of the American trade has been due directly to my own personal efforts and to those of agents under my direction.

(13) It may be claimed that an open market, and one entirely uncontrolled, would have caused equal or greater results. To this I give a flat denial, and I affirm, on the contrary, that, with all the work now done and the reputation secured, only intelligent and efficient action on the part of good soliciting agents will secure new contracts of any consequence.

(14) In further following of the last two paragraphs, I affirm that I would never have prosecuted the business, after the sad experiences of 1879, if I had not been assured of reasonable protection from undue competition, and I am equally confident that no one else would have done so. To obtain contracts for paving requires an expenditure of much time and money, coupled with intelligent and persistent action. Only parties having large pecuniary interests at stake can and will make the necessary expenditures and efforts. Knowing that in most cases public contracts are open to public tenders and will be given to the lowest bidder, all motive for effort disappears if it is known in advance that Tom, Dick, and Harry, shoemakers and blacksmiths, can rob one of the fruit which justly belongs to him who planted and cultivated the tree.

* * * * * * *

I now beg to notice briefly some of the objections which have been urged against this grant:

(1) That it is a monopoly.

I answer that it is not a monopoly, but a partnership, in which the island of Trinidad is a special partner, and all others—leaseholders, shippers, commission merchants, laborers, refiners, contractors, and many more—are active partners, pushing the trade to the advantage and profit of all concerned. The object is not to corner the market, prevent sales, and obtain high prices, but it is to promote trade and increase shipments by supporting those who will expend time and money in exploring new fields and creating greater demands in old ones. It is protecting chosen agents from disastrous competition, which ruins both principal and agent. It is no more a monopoly than railroads or turnpikes or gas companies are monopolies. All of these methods of promoting public interests are recognized, and so have grants and concessions of mineral rights throughout all time and in every land.

* * * * * * *

(5) It is inconsistent for the shippers like Mr. Douglas to have opposed, as formerly he did, any increase in the export duty and now to propose or acquiesce in the contemplated increase.

Answer. The proposal really emanates from the paving contractors, and not from the shippers.

* * * * * * *

(7) Trinidad has a valuable property in this pitch lake—in fact, a monopoly of its own—and can do as it pleases.

Answer. Deposits of asphalt are known to exist in many places in the United States, in Mexico, in Cuba, and in Venezuela. What Trinidad refuses may be granted by one of these other countries.

In fact, Venezuela has already given sole concessions for many years. Relying on the regulations of 1871, we have thus far used Trinidad asphalt in our business, and have made our reputation in its use. We therefore prefer to continue to use it, and to use it exclusively. We consider that the basis for future business as outlined in the proposals is a liberal one for the colony. Certainly it seems to have been so formulated as not to have been open to criticism so far as the terms themselves are concerned. We aimed to make the terms so liberal and the conditions so unobjectionable as to commend the proposal to the prompt and favorable action of the Government. We can not see how these terms can be changed to any better purpose or effect. If the colonial Government shall see fit to accept the proposal, we believe that a prosperous future awaits all parties interested in the pitch lake, and, most of all, the Government itself. But should the council reject the offer, we must, of course, abide by its action, and we shall, of course, be at liberty to adopt any other policy which may commend itself to our good judgment. We are already in doubt whether the amount offered and guarantied to the Trinidad Government, if invested in the development of other deposits of asphalt which have been recently brought to our notice, and the control of which is now offered to us on terms fully as favorable as the regulations of 1871, on the faith of which we have hitherto acted, would not result in supplying us with material equal in every respect to that obtained from the pitch lake at a large saving in cost to us.

* * * * * * *

The following European paving companies petitioned against granting the concession: Val de Travers Company, contractors of commune of Grassy, Société Français des Asphaltes, United Lunmer and Vorwohle Company, and Compagnie Générale des Asphaltes. These petitions bore different dates, but the contents were the same and as follows:

To His Excellency Sir Henry Holland, K. C. M. G.,
Colonial Office, Downing Street.

Sir: The undersigned wish humbly to bring to your notice an article published in the European Mail of the 16th instant, showing that it is in contemplation to grant certain gentlemen the monopoly of the pitch taken from the lakes in the colony of Trinidad.

We, as large users of and traders in the commodity, feel that if the proposal is carried into effect it will, by raising the price of the raw material, seriously interfere with its extended sale.

We may mention that the mere possibility of the lake being thrown open has resulted in the fall of quite 5*s*. per ton, and, on the other hand, we have to look to an advance upon the old price should the proposal be carried out.

We therefore trust you will reconsider the matter before definitely settling it in a manner which would, we feel convinced, tend to restrict the output of the pitch.

And your petitioners humbly pray.

On the other hand, several American companies petitioned in favor of the acceptance of Mr. Finlayson's proposal. Their petition closed as follows:

And your petitioners further say that much prejudice exists in certain parts of the United States against this pavement by reason of its alleged slippery character, and, were the business to fall into the hands of speculators, they stand ready to avail themselves of an open market in this material and to lay pavement only intended to last until they can get their pay or a part of it, your petitioners believe that Trinidad asphalt pavements would soon fall into disrepute and disuse, to the damage of your petitioners and those interested in increasing the output and use of Trinidad asphaltum.

Wherefore your petitioners pray that the proposal of said Finlayson and his associates, now before you, may be accepted.

Your petitioners further say that they have no pecuniary interest in the business of said Finlayson and his associates, and no interest whatsoever, except as above stated; that they have no interest in the business of A. L. Barber or of the Barber Asphalt Paving Company; and that neither said Barber nor said company has any interest in the said business of your petitioners; that, on the contrary, they are rivals in the paving business in the United States.

And your petitioners further say that the processes and machinery for manufacturing their particular products are fully and completely covered by said letters patent, and that your petitioners are fully and completely protected in the exclusive manufacture of compressed asphalt blocks and tiles thereby, and that no fear of competition in this product actuates them in making this petition; but your petitioners well know that open and unlimited competition in asphalt pavements generally will be a great damage to them, for the reason that the public fails to discriminate between the different manufacturers and layers of asphalt pavements and hastens to condemn all for the unskillful or fraudulent work of one.

Wherefore your petitioners will ever pray.

THE INTERNATIONAL PAVEMENT CO.,
[SEAL.] By WALTER S. WILKINSON,
President.

THE HASTINGS PAVEMENT CO.,
[SEAL.] By C. G. PALMER,
President.

ASPHALT BLOCK CO. OF PHILADELPHIA,
[SEAL.] J. C. DAUBMANN,
President.

THE TRINIDAD ASPHALTUM BLOCK CO.,
[SEAL.] By GEORGE B. UPHAM,
Its Attorney.

THE MARYLAND PAVEMENT CO.,
[SEAL.] By WALTER S. WILKINSON,
President.

THE ASPHALT BLOCK MF'G CO.,
[SEAL.] By HENRY C. BERRY,
Secretary.

On September 1, 1887, the legislative council passed the following resolution by a vote of 7 to 5:

In the opinion of this council it is to the interest of the colony that the concession asked for by the New York and Trinidad Asphalt Company and Messrs. Previté & Greig for the grant to them of exclusive rights to win pitch from the pitch lake at La Brea be granted on the terms and conditions specified in Mr. Finlayson's letter dated the 1st of February, 1887, subject to the modification that the concession for the last seven years of the proposed term of twenty-one years shall be conditional upon the concessionaires having paid to the Government during the first fourteen years of the term under the concession or otherwise a sum amounting to not less than £168,000.

On the 2d of November, 1887, the secretary of state for the colonies wrote the governor as follows:

* * * * * * *

(4) The objection to the concession to which I attach most weight is that, while exporters of pitch other than the concessionaires would be obliged to pay the same rate of export

duty as the concessionaires, the latter would pay no royalty for the pitch won from the lake, and, upon the whole, I have arrived at the conclusion that it would be fairer to other exporters if it could be arranged that the amount payable by the concessionaires should be considered in part as a royalty, and the remainder as export duty, an equivalent rate of export duty being imposed on all pitch exported from the island.

(5) From the correspondence with Messrs. Previté & Greig annexed, you will see that they agree to such a modification of their original proposal, and that they are prepared to pay the £10,000 per annum for 30,000 tons of pitch to cover royalty at the rate of 1*s*. 8*d*. per ton on raw pitch and 2*s*. 6*d*. per ton on *épurée*, and export duty at the rate of 5*s*. per ton on raw pitch and 7*s*. 6*d*. on *épurée*, similar export duties being levied on all pitch exported from the colony.

(6) You will now be good enough to lay this modification of Mr. Finlayson's proposal before the legislative council, and, if it is approved by the council, to take steps for granting the concession applied for in this amended form and with the modification suggested by the legislative council.

* * * * * * *

On the 25th of November, 1887, the legislative council passed the following resolution by a vote of 8 to 3:

That this council approves of the following modifications of the terms of the concession of rights to win pitch from the pitch lake at La Brea, recommended by resolution of this council dated 1st September, 1887, that is to say, that the concessionaires, instead of paying an export duty of 6*s*. 8*d*. per ton on raw pitch and 10*s*. per ton on *épurée*, shall pay a royalty of 1*s*. 8*d*. per ton on raw pitch and 2*s*. 6*d*. per ton on *épurée* and export duty at the rate of 5*s*. per ton on raw pitch and 7*s*. 6*d*. per ton on *épurée*, similar export duties being levied on all pitch exported from the colony, and that the minimum sum of £10,000 per annum to be paid by the concessionaires shall be taken to cover the above royalty and export duty in respect of 30,000 tons of pitch.

PAPERS IN REFERENCE TO EXTENSION OF LEASE OF PITCH LAKE.

The deed of concession, as drawn up and signed, provided for three distinct periods: A period of fourteen years; an extension, on certain conditions, of seven years; and a further extension, at the option of the Government, of "ten years or more." It was openly alleged by the opposition in the legislative council that the last two words ("or more") were added without legislative authority. On December 13, 1889, Mr. Finlayson, on behalf of the concessionaires, submitted to the governor a lengthy letter from Mr. Barber, in which the latter said:

I am clearly of the opinion that the Government would find its interests greatly promoted and its revenues largely increased if the uncertainty now attaching to the "ten years or more" period could be removed.

* * * * * * *

Returning now to the matter of determining the uncertainty which attaches to the "ten years or more" period, you will ask what plan I have to suggest. In reply I have to say that the simplest and easiest way would be to follow out the arrangement relating to the seven year's period, which is conditional upon the payment of £28,000 extra, being at the rate of £4,000 per year—that is, let it be understood and agreed that as the payment of £28,000 extra fixes the seven year's period, so the payment of any additional £4,000 shall entitle the concessionaires to an additional year.

* * * * * * *

This proposition, giving to the concessionaires an additional year for every £4,000 they paid in the way of export tax and royalty on annual exports above the 30,000 tons they were required to take, would have placed it in the power of the concessionaires to have carried the lease *ad infinitum*. This feature of the proposition creating a perpetuity was not entertained, but Lord Knutsford signified his willingness to approve of the extension for twenty-one years on the conditions named (the exportation of 252,000 tons extra at 1*s*. 8*d*. royalty and 5*s*. export duty per ton during the first twenty-one years—£84,000), "provided that the concessionaires will agree to the abrogation to the clause in the deed of concession which enabled them to put an end to the concession at the end of any year by leaving the rent unpaid for sixty days"—which he believed to be a variation from the original agreement. In reply to this Mr. Barber wrote the governor, under date of April 26, 1890, as follows:

* * * * * * *

I now come to deal with the condition put by Lord Knutsford upon the proposal, viz, that the clause giving concessionaires power to end the concession in any year should be abrogated. I regret to say that the concessionaires are not in position to comply with this condition, as will appear from the correspondence between two of them and his lordship upon this point, copy of which I inclose herewith. Immediately following upon this correspondence I received telegrams at New York from Mr. Previté advising me to withdraw the proposal now pending. I was upon the point of doing so when I decided to come to London with a view of trying to find some basis for agreement on this question.

And here it becomes necessary for me to state that immediately after the favorable action of the legislative council in September, 1887, I perceived very clearly that unless the various interests of the concessionaires, viz, Mr. J. W. Previté, Mr. H. A. Greig, and the New York and Trinidad Asphalt Company, and of others owning or controlling the large deposits of asphalt existing in Bellevue, Point d'Or, Brighton, and Plaisance, and other lands at La Brea, could be united into one company or enterprise, there was great danger that quarrels and internal dissensions might arise which would ruin the business and destroy the value of the concession itself. After considerable thought, I formulated a plan for the merging of all or most of these interests into one company.

By reason of the existing incorporation in the United States of the New York and Trinidad Asphalt Company, one of the concessionaires, and also of the fact that the larger part of the shipments of pitch were made to the United States, it was decided to incorporate the new company in the United States. This was done in August, 1888, under the title of "The Trinidad Asphalt Company," of which I am the president. The company has officers and agents in London and Trinidad. This company has acquired the properties above named in fee simple, and also the respective interests of all the concessionaires, without disturbing their relations to the Government.

The interests of the Crown were promoted and not prejudiced by this consolidation.

As I am desirous of meeting the views of Lord Knutsford, indicated in Mr. Wingfield's letter of the 12th instant, I would propose, on behalf of the Trinidad Asphalt Company, to guaranty to the Crown the payment of £140,000, being the amount of the annual advance of £10,000 for fourteen years, on account of which payments already made amount to more than £50,000. This, with the further payments of the current year and the annual deposit at the beginning of the fourth year, should amount by February, 1891, to £70,000.

I trust that this proposition will meet with the approval of your excellency and of the legislative council. If so, I am confident that the results will be such as to cause those who are now opposing it to admit their mistake in less than three years, as was the case with some who objected to the concession in 1887.

There is one point which should not be overlooked, viz: By the end of the current year the concessionaires will have paid about £60,000, which will cover the £28,000 extra to secure the seven years' period, and it will only be necessary to pay the minimum of £10,000 during the remainder of the fourteen years. If the proposal now pending is adopted, it will be our policy to ship only from the pitch lake, paying the royalty of 40 cents per ton, as well as the export duty of $1.20; otherwise, after taking the first 30,000 tons yearly from the pitch lake, it would undoubtedly be for the advantage of the company to ship from Point d'Or. This would effect a saving to the company and a loss to the Government of 40 cents out of every $1.60, or one-fourth, which, on extra tonnage, amounting in the former case to £84,000, would effect in the latter case a loss to the Government of £21,000. This loss would not have been possible if the terms of the original proposal for the concession had not been modified at the instance of those who opposed it. The acceptance of the proposal now pending will prevent this loss.

* * * * * * *

In reference to the proposal Lord Knutsford wrote the governor on June 15, 1890, as follows:

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(4) I am of opinion that this guaranty might be accepted in substitution for the abrogation of the sixty days' clause, provided that it is a substantial guaranty, and not merely the undertaking of the Trinidad Asphalt Company to pay the £140,000, and provided also that the conditions suggested in the eighth paragraph of your dispatch are superadded, under which the concessionaires could not determine the extended concession without giving a year's notice, or for any other reason than that the lake had failed to give an adequate supply of pitch, except on payment of a fine of not less than $75,000.

* * * * * * *

The matter was adjusted substantially on this basis, the mode of payments being changed to one permanent deposit of £10,000 at London in the form of consols or acceptable securities, interest on same accruing to the company, and the principal being held as security for the undertaking of the company.

On July 23, 1890, Mr. Barber wrote the governor in respect to the profits of the Trinidad Asphalt Company as follows:

* * * * * * *

(*a*) The price of £2 10*s*. is a quotation merely, few sales, if any, being made at this figure.

(*b*) These few sales are made entirely by importers handling pitch obtained from deposits outside of the pitch lake, principally in village lots at La Brea. They are enabled to get so high a price by reason of the fact that the concessionaires, or their successor, the Trinidad Asphalt Company, have adopted the policy uniformly followed by the European asphalt companies, which consists in establishing special agencies for particular uses and for certain territory. The necessity for adopting such a policy was clearly set forth in the letter of Messrs. Previté & Greig addressed to E. Wingfield, esq., under date of February 22, 1887, and printed in Trinidad Council Paper No. 54, of 1887, among other papers with reference to the pitch lake, to which I would ask special attention. The adoption of this policy has enabled outside shippers to ask and obtain higher prices than would otherwise have been possible, the fact being that much of the material so offered has been purchased by the agents or consumers of the lake pitch in order to prevent their own market from being ruined.

(*c*) At no time have the concessionaires or the Trinidad Asphalt Company realized the price above quoted of £2 10*s*. per ton; but, on the contrary, a large portion of the material has been sold under contracts made prior to the granting of the concession, and which, under their terms, will be coextensive with the concession and any extensions thereof at the fixed price of £1 13*s.* 4*d.* per ton, thus leaving, on the basis of the committee's estimate of cost, a profit of only 4*s.* per ton. Of this amount much less than one-half goes to the concessionaires, the greater part being consumed in the expense of management and in payments to the former owners of property containing large deposits of pitch outside of the pitch lake, the control of which was absolutely essential to the successful promotion of the business.

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The following letter, written by Mr. Barber to the governor of Trinidad, seems to leave little doubt that the Trinidad Asphalt Company was sufficiently mindful of the colonial revenue, not only in the way of increasing the price of Trinidad asphalt, but also in the way of pointing out how a reasonable action anticipated from the United States Government might be got around:

No. 1 Broadway,
New York, July 30, 1890.

SIR: My attention has been called to a report of the proceedings of the legislative council held July 7, as published in the Port-of-Spain Gazette under date of July 8.

In discussing matters relating to the pitch-lake concession two or three remarks were made concerning which I beg leave to submit the following observations:

(1) It was claimed that the Government gets for the pitch, not 6*s.* 8*d.*, but only 40 cents, the difference, 5*s.* (or $1.20), being merely an export duty. This statement is true, as made, and, from the point of view taken, is correct enough; but it is not the entire truth, nor is it the correct point of view from which to form a reasonable and complete judgment. For this purpose it is necessary to recall the condition of things immediately prior to the granting of the concession. At that time the greater portion of the pitch lake had been leased to different parties for various lengths of time, some of them running for nearly fourteen years. Under these leases the rents were quite nominal, being, for the most part, at the rate of £10 per annum for each 5 acres. I have not the exact data within my reach, but I am confident that the total sum realized by the Government for rents under the various leases of the pitch lake did not exceed £250 per annum, or, say, $1,250, which sum, divided by the annual tonnage taken at 30,000, was only about 4 cents per ton. Down to 1885, inclusive, the export duty on crude pitch was 9*d.* per ton; beginning with January, 1886, the export duty was 2*s.*, or 48 cents, per ton.

This was the condition of things when the Government, after gaining the suit before the judicial committee of the privy council, was about to issue licenses to dig from the reserved 5-acre lot at 2*s.* 6*d.* or 3*s.* per ton. This action would have robbed the leaseholders of all inducement to push the trade, and would not have been profitable to the Government, for the reason that the leaseholders, having leases with nearly fourteen years to run, could and would have undersold the Government, offering to intending licensees much better terms than the Government proposed to make. The final result would have been unprofitable alike to the Government, leaseholders, and licensees. In this condition of things, the proposal for the present concession was put forward by Mr. Finlayson, in his letter to your excellency dated February 1, 1887, proposing, in behalf of the leaseholders, to surrender all leases to the Government, and to acquire from the Government an exclusive license for the pitch lake, agreeing to pay therefor the sum of £10,000 yearly in advance, against which shipments were to be made of raw pitch, or the equivalent in *épurée*, of 30,000 tons, being at the rate of $1.60 per ton; all shipments in excess of 30,000 tons to be paid for at the same rate, namely, $1.60 per ton. In order to protect the concessionaires from the competition of deposits known to exist outside of the pitch lake, it was stipulated that the Government was to establish and maintain, during the concession, a duty on export of raw asphalt of 6*s.* 8*d.* per ton. After the legislative council of September 1, 1877, had approved the granting of the concession substantially upon these terms, certain parties, who had previously sought to defeat the concession entirely, appealed to the secretary of state, claiming that a uniform export duty of 6*s*. 8*d*. would be unfair to them (the owners of private deposits), and asked that the Government, instead of fixing a uniform export duty of $1.60, should fix upon a very much less sum for their benefit. The secretary of state at first contemplated fixing the export duty at 80 cents and the royalty upon the pitch taken by the concessionaires at 80 cents; but the concessionaires claimed that so great a difference would weaken the value of the concession, and would at the same time deprive the Government of income from two sources—on the one hand, from the owners of private pitch, by the proposed reduction of 80 cents per ton in the export duty; and, on the other, from the concessionaires themselves, who, after shipping 30,000 tons, could ship from their own private deposits and thus save a similar amount. A compromise was finally effected, and the export duty was fixed at $1.20 and the royalty at 40 cents. I would here call attention to the fact that the concessionaires have not availed themselves of the opportunity to save this 40 cents per ton on shipments made in excess of 30,000 tons, but have uniformly paid the full sum of $1.60 to the Government, as contemplated in the original proposal made by Mr. Finlayson, and notwithstanding its subsequent modification in the interest of parties opposing the concession. This they have done, not because they did not clearly have the right to ship from their own deposits and save the 40 cents per ton, but because they have been desirous to show the heartiest good will toward the Government, and also because the payment of this 40 cents per ton would go toward the payment of the £140,000, and afterwards of the £28,000, both of which sums must be paid in order that the concessionaires may become entitled to an additional seven years.

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(2) Another objection to the existing concession was put forward on the ground that the hands of the Government are tied by the present deed, so that it can not vary or revoke the export duty of 5*s*. on crude asphalt, in case it should become desirable to do so by reason of the Government of the United States requiring it, *inter alia*, to be done as a condition precedent to admitting sugar into the United States free of duty. With regard to this objection, I have to submit the following remarks:

(*a*) It is not at all certain that the United States Government will take the action suggested; if not, the objection will prove groundless.

(*b*) In case the United States Government should take such action, why can not the Trinidad Government get over the difficulty, as it did in the case of sugar, "by collecting money, formerly raised in the shape of export tax, by means of a special tax for the purpose?"

(*c*) In case the United States Government should take the action above indicated, and the Trinidad Government should desire to modify the existing deed of concession in the manner above stated or in any other way that will be conservative of the rights and interests of all parties, I can assure your excellency that the concessionaires and the Trinidad Asphalt Company will be quite ready to meet the Government in the matter; but, in dealing with the case, should it arise, the Government will, of course, deal fairly, both as regards the interests of the concessionaires and outside shippers as well as its own.

* * * * * * *

As Mr. Barber, in accounting for profits, refers to the "payments to the former owners of property containing large deposits of pitch outside the pitch lake, the control of which was absolutely essential to the successful promotion of the business"—lands which yield the Trinidad Asphalt Company substantially no income, which, from a schedule before me, would seem to embrace thirty-nine separately described freehold hereditaments and three leasehold premises, and which, according to the price at which asphalt and asphaltic lands on the market are now held, would be worth several million dollars—I deemed it proper to ask the president of the chamber of commerce (Mr. William Howatson, a member of the firm of A. Cumming & Co.) for an estimate of what this property cost the Trinidad Asphalt Company, and he favored me with the following communication:

TRINIDAD, *June 6, 1892.*

Hon. W. P. PIERCE,
Consul of the United States of America.

SIR: In reply to your inquiry as to the amount the concessionaires of the pitch lake (the Barber company) are believed to have expended in acquiring the ownership or control of lands outside the lake containing deposits of asphalt, I have to inform you, * * *

Altogether, I believe that quite $500,000 has been expended in acquiring the control of outside lands containing asphalt.

My attention has been called to a statement by Mr. George Christall, of New York, in reference to asphalt from outside lands. I beg to state that such asphalt has been shipped to Europe and America for over twenty years past; and within the last four or five years, and since the concession of the lake, the largest shippers of outside asphalt have been Mr. Christall or his agents, dug from lands owned or leased by him or them. Their shipments during the above period and up to as recently as December last have amounted to between 40,000 and 50,000 tons.

I am, etc.,

WM. HOWATSON.

ASPHALT EXPORTS.

I have already shown the general character of the shipments of asphalt, which were comparatively insignificant from 1851 to 1866; and the following tables will give the shipments from that time to the present:

Table showing exports of asphalt from the pitch lake in periods of four years each.

Period.	Year.	Quantity.
		Tons.
4 years preceding regulations	1867	3,285
	1868	2,057
	1869	4,683
	1870	9,029
	Total	19,054
	Average per year	4,763
First period of 4 years after regulations	1871	3,271
	1872	13,580
	1873	7,848
	1874	9,728
	Total	34,427
	Average per year	8,607
Second period of 4 years after regulations	1875	14,742
	1876	15,274
	1877	12,717
	1878	16,190
	Total	58,923
	Average per year	14,731

Table showing exports of asphalt from the pitch lake in periods of four years each—Cont'd.

Period.	Year.	Quantity.
		Tons.
Third period of 4 years after regulations	1879	23,561
	1880	22,927
	1881	26,605
	1882	30,760
	Total	103.853
	Average per year	25,963
Fourth period of 4 years after regulations	1883	39,845
	1884	39,797
	1885	34,874
	1886	*40,000
	Total	154,516
	Average per year	38,629

* Estimated.

Table showing exports of pitch from Trinidad for twenty years ended 1886, taken from harbor master's record.

Year.	America.	Europe.	Total.
	Tons.	*Tons.*	*Tons.*
1867	700	3,087	3,727
1868	200	1,325	1,525
1869	....	5,297	5,297
1870	2,953	5,857	8,810
1871	828	3,222	4,050
1872	2,144	9,854	11,998
1873	746	6,913	7,659
1874	711	9,204	9,915
1875	1,100	13,632	14,732
1876	3,979	11,715	15,694
1877	1,441	11,576	13,017
Total	14,802	81,622	96,527
1878	5,860	9,926	15,786
1879	9,078	13,633	22,711
1880	7,178	15,614	22,792
1881	8,523	17,753	26,276
1882	15,075	14,878	29,953
1883	24,781	15,025	39,806
1884	19,685	17,913	37.598
1885	15,704	19,040	34.744
1886	25,835	11,298	37,133
Total	131,719	135,080	266,799
Grand total	146,521	216,602	363,326

In neither of these tables is there any attempt to distinguish between raw and *épurée*.

Table showing the exports of Trinidad asphalt from 1885 to 1891, taken from the annual blue books, custom-house records.

ÉPURÉE.

Country.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
United Kingdom	1,658	1,724½	755⅓	1,603½	1,516	1,535	1,060⅓
British West Indies	20	0⅜	8¼	2⅜	8	7	1⅜
British Guiana	9	13	4	12	8	8	....
United States	184	....	2,246	2,494½	2,546	1,441	951
France	992	300	244	925	1,005	714	1,020
Germany	3,868	3,374$\frac{7}{16}$	4,737	6,165	5,048	6,406	6,292
Holland	....	....	....	....	1,062	449	620
French West Indies	....	3	....	1	....	....	....
Venezuela	....	1	....	....	....	....	....
British North America	....	....	32	32½	80	80	87
Russia	....	....	....	....	286	....	....
Total	6,731	5,416$\frac{23}{48}$	8,026$\frac{7}{12}$	11,235⅜	11,559	10,640	10,031⅓

RAW.

Country.	1885.	1886.	1887.	1888.	1889.	1890.	1891.
United Kingdom	1,850	1,185	2,995	2,096½	2,286	16,121⅜	2,562
British West Indies	....	....	....	0¼	....	....	4
United States	15,573	25,720½	23,937	31,424½	56,503	42,990	75,025½
France	6,076	2,130	3,930	4,167	2,047	5,830	3,670
Germany	4,096	1,220	3,630	3,104	3,078	1,830	3,357
Holland	910	....	580	....	1,520	550	300
British North America	....	....	....	....	1	....	40
Russia	....	....	....	....	....	200	....
Italy	....	....	....	....	250	....	....
Australia	....	....	....	....	880	680	1,000
Total	28,505	30,255½	35,072	40,791⅜	66,565	68,201⅜	85,958½

NOTE.—There were 20 gallons of liquid shipped to the United States.

Table showing comparative statement of receipts for quarter ended March 31, 1891 and 1892.

Receipts.	1891.	1892.
	£ s. d.	£ s. d.
Asphalt export duty	6,876 1 3	8,496 14 8
Royalty	1,954 10 5	1,980 5 0
Total	8,830 11 8	10,476 19 8

The first two tables above were submitted by Mr. Barber in his letter referred to, dated the 1st of August, 1887. By a comparison of the totals of the two tables (the first covering lake pitch and the other the entire shipments of the island), it would seem that over 46,000 tons of land asphalt were shipped during the period named, from 1867 to 1886. But this deduction is evidently unreliable. Tables which set forth, as these do, that during several of the years named more asphalt was shipped from the pitch lake than from the entire island can not be depended on to draw close deductions from. But, taken as a whole, for general information they are sufficiently correct.

As to what percentage of the entire shipments was land pitch and what percentage was lake pitch from 1851 to the present time it is impossible to tell. The facts heretofore stated justify the belief that prior to about 1860 nearly, if not quite, all of the pitch shipped was taken from the pitch banks at La Brea Point; but from about that time to the present the lake has furnished the bulk of the shipments. Mr. Douglas, though evidently a party to the arrangement perfected by Mr. Barber in the winter of 1879–'80, continued to work Point d'Or till June or July, 1882; and I think it quite likely, from the information I have obtained, that the Point d'Or pitch he had collected was not all shipped away before August, 1883, unless he shipped land pitch in this interim from La Cocagne, where it is alleged he continued to dig after he stopped digging at Point d'Or. But this does not exactly agree with the warden's officer's report hereinafter mentioned.

Prior to the arrangement perfected by Mr. Barber in the winter of 1879–'80 pitch was dug at a plantation called Bellevue, by the West India Shipping Company, but I am not informed as to how long a time (if any) that company continued digging there after that arrangement. I notice from the London Shipping Gazette and Lloyd's List of April 22, 1892, that one of the stipulations in the sale of that property by a Mr. Callender, on behalf of the West India Shipping Company, was that he (Callender) was not to ship pitch to the United States. The numerous shipments of Mr. Douglas of Point d'Or pitch, on the other hand, from 1879 to 1882, inclusive (I did not have the harbor master's record examined for any other years), were almost exclusively to Washington, D. C.

It is proper that I should observe here that Mr. Douglas, in petitioning against an increase of the export tax in September, 1885, would seem to convey the idea by the language he used that he had shipped 19,400 tons of asphalt from Point d'Or in the three years from 1882 to 1884. But the evidence seems conclusive that none of the pitch he shipped was dug from Point d'Or after June or July, 1882.

He was charged with obtaining pitch from the lake, which was alleged to be against the special regulations referred to, and the charge was sustained. A letter from the assistant warden (R. Johnstone) at La Brea, dated March 16, 1886, and addressed to the colonial secretary, gives a statement of an employé of the lessees of the lake, withholding his name for prudential reasons, as follows:

> Since Mr. Douglas stopped digging at Point d'Or all the asphalt he has exported has been taken from the pitch lake.

The assistant warden adds to this his own statement, as follows:

> Having had charge of that district for five years, I am in a position to bear out his statement as regards the ceasing of the digging of pitch on Point d'Or; but, being uncertain as to the year when the digging ceased, I thought it necessary to visit La Brea and gather information from those who were connected with Mr. Douglas when he carried on his business himself. With this view in mind I visited La Brea on Saturday, the 13th, and ascertained that they ceased working at Point d'Or some time between June and July, 1882. This information I got from men who worked for Mr. Douglas up to the last.

It appears from one of the statements of Mr. Barber that he began using Trinidad pitch soon after July, 1878, and that he first purchased supplies from Mr. E. Burgess Warren, who had bought the same from the agents of Mr. Finlayson. I will add that Mr. Finlayson, so far as I am advised, was at that time dealing exclusively in lake pitch. Mr. Barber's statement also shows that in the spring of 1879 he bought from Mr. Douglas a cargo of *épurée* (boiled pitch). He also entered into a contract with Mr. Douglas to furnish him and his associates with pitch for a term of five years, with the option of renewing the contract twice for similar periods, being the entire term of Douglas's lease of Point d'Or. In the spring of 1879 Mr. Barber and his associates, as he states further, took a public letting at Washington city for 104,000 square yards of work "at the lowest price named by several competitors," which they completed. These circumstances, therefore, would strongly indicate that this work was done with land asphalt, as Douglas, up to that time, is believed to have shipped none other.

I think it can be stated with substantial accuracy that very little, if any, land asphalt was shipped to the United States from about August, 1883, to 1888. From 1888 to 1891, inclusive, Messrs. Thomas A. Finlayson & Co. have kept an account, and have kindly furnished me with the following figures:

Table showing the shipments of land asphalt.

Year.	United States.		Other places.	
	Crude.	Épurée.	Crude.	Épurée.
	Tons.	*Tons.*	*Tons.*	*Tons.*
1888	5,620	1,905	600	1
1889	11,327	2,042		
1890	16,460	880		
1891	10,450		127	

The custom-house table of revenue receipts on asphalt will show (considering that the royalty, which is paid on lake asphalt exclusively, is 1*s.* 8*d.* per ton) that the shipments during the March quarters of 1891 and 1892 were as follows:

March quarter—	Land asphalt.	Lake asphalt.
	Tons.	*Tons.*
1891	4,050	23,454
1892	10,223	23,763

LAND VS. LAKE ASPHALT.

In collecting data for the preparation of this report I came across a published statement from Mr. John Cumming to the effect that the land asphalt from Point d'Or and Bellevue was considered very inferior to the pure lake asphalt; and I also came across another statement from Mr. Thomas A. Finlayson, now deceased (his letter herein of March 31, 1887), as follows:

> The Crown lands in the vicinity of the pitch lake have large deposits of pitch easily obtainable and equal in quality to the lake pitch.

These two statements are particularly interesting, inasmuch as the highly respectable firm of A. Cumming & Co., of which Mr. John Cumming is the senior partner, is now engaged as the trusted agent of Messrs. Carter, Hawley & Co., of New York, in upholding the merits of the land asphalt, while the equally reputable firm of Thomas A. Finlayson & Co. (of which Mr. Thomas A. Finlayson at the time was senior partner) is the trusted agent of the Trinidad Asphalt Company, which is in active competition against the land asphalt. I therefore deemed it proper to address Mr. Cumming and Messrs. Thomas A. Finlayson & Co., calling attention to these public statements, and requesting further information. Both courteously complied with my request, and I now submit their letters.

STATEMENT OF MR. CUMMING.

TRINIDAD, *May 14, 1892.*

Hon. W. P. PIERCE,
Consul of the United States of America.

DEAR SIR: I duly received your favor of the 4th instant, calling my attention to a statement made in a letter in reference to matters connected with the pitch-lake concession, to the effect that the "asphalt to be got from Point d'Or and Bellevue lands is considered very inferior to the pure asphalt dug from the lake, and not only sells at a much lower price, but is always difficult to sell," and asking me for information on what basis or evidence I had made such statement. In full explanation, I think it necessary to state somewhat in detail the circumstances under which that letter was written, the more especially as the inferiority or otherwise of the "land," as compared with the "lake," asphalt was not the question at issue; and my statement was not founded on any information or evidence whatever, but solely from a knowledge that parties interested in selling "lake" asphalt asserted the inferiority of "land" asphalt to get a preference for their own in the market. I beg your patience, therefore, in laying before you the following facts:

(1) I was, from its inception, opposed to the Government granting the concession to the Barber company, not on personal grounds, but because I did not consider it for the best interests of the public that a monopoly should be created of an article—a raw material—that was coming into demand on an enormous scale, and of which the colony possessed an inexhaustible supply. For many years the valuable public property of the pitch lake had been practically monopolized by a few individuals, who paid the Government no adequate rent for it, and who refused to sell to parties outside their "ring." This state of things I endeavored to upset, and for some years carried on an active opposition by correspondence with the Government and otherwise. An appeal was even made to the Queen in council against the action of the Government in adopting my proposals, but after two years a decision adverse to the lessees threw the lake open.

(2) Previous to the concession the different interests in asphalt were: Messrs. Finlayson, Previté & Greig, Field, and Stollmeyer, sole lessees of the lake; John G. Douglas and the West India Shipping Company, of London, shippers of land asphalt, the West India Company owning the Bellevue estate and Mr. Douglas leasing Point d'Or lands from the owner, Mr. Finlayson.

(3) Mr. Douglas dug and shipped asphalt from Point d'Or lands for many years, and had a contract with Mr. Barber, who for years (from 1879 to 1882, on Mr. Barber's own state-

ment) got his whole supply of asphalt from Douglas without any complaint as to quality, and it was dug from Point d'Or.

(4) In 1885 the Government, to get a greater revenue from asphalt, proposed a law increasing the export duty from 18 cents to 60 cents per ton, which was opposed by both interests, and Mr. Douglas presented a petition to the legislature, wherein he set forth that he was lessee of Point d'Or, from which he dug and shipped asphalt, and that during 1882–'84 he had so shipped about 20,000 tons, and he opposed the increased tax as oppressive to his private interests.

(5) It was within my knowledge that the statement in that petition that the 20,000 tons had been dug from the Point d'Or lands was untrue, and that, as a matter of fact, it had been dug from the lake under a private agreement, which I contended was such a violation of the terms of the leases of the lake as would justify the Government in canceling them and taking the property into its own hands for a proper administration by selling to all buyers at a fair price.

(6) My letter, from which you quote, was written with the object of substantiating the untruthfulness of the statement that had been palmed off on the legislature and exposing the irregularities in the leases, and I referred to the alleged inferiority of the Point d'Or asphalt and the difficulty of selling it as a probable reason why Mr. Douglas took lake asphalt, because I knew that the lake lessees used to run down Douglas's asphalt in the market so as to prevent his selling and to get a sale for their own; but I had never seen any comparative analysis of the different asphalts or had any evidence on which to form an opinion.

(7) I may add that, from the further information I have acquired as to the workings of the pitch-lake ring, I am now of opinion that the chief reasons for the lessees giving Douglas asphalt from the lake were the private arrangement forming the monopoly, the much less cost of digging from the lake than from Point d'Or, and the further economy in expenses by having the whole work of digging, carting, and shipping done by the same gang of workmen and under the one management.

(8) As the question of the relative quality of "lake" asphalt and "land" asphalt has been mixed and now forms an important subject of discussion and inquiry in America, perhaps you will pardon my saying a little more on the subject.

(9) As regards asphalt from Point d'Or lands, I have never seen any chemical analysis, and so can hardly form an opinion further than that, looking to the situation and distance in regard to the lake of most of the lands, I think it not unlikely that asphalt from a portion of the property would be found somewhat inferior to asphalt from the lake and from outside lands now being dug that are more favorably situated. But in regard to the asphalt from other outside lands, I have seen numerous analyses and compared them with that of lake asphalt, and have no hesitation in expressing the opinion that, even in the crude state, there is no practical difference, and, if refined by the same process, I do not believe any appreciable difference will be found.

(10) The Barber Paving Company, sole concessionaires of the lake asphalt, are now contending that the "land," or "overflow," asphalt is so inferior in quality as to be unfit to make a good pavement, and are urging its exclusion from all contracts. It is very important and instructive to notice the opinions of the parties forming the concessionaires at other times, when it was not their interest to decry and depreciate land asphalt. The original application for the concession, dated February, 1887, begins with the following conditions:

"First. Government to concede to us the exclusive right to win asphalt from the pitch lake for the term of twenty-one years.

"Second. During the existence of this concession, Government not to grant to any person, firm, or incorporated company the right, under the form of lease, license, or otherwise, to take asphalt from the pitch lake nor from any Crown lands.

"Third. Government to establish and maintain during this concession a duty on export of raw asphalt of 6*s*. 8*d*. ($1.60) per ton, whether such asphalt be taken from the lake or elsewhere."

Lord Knutsford, secretary of state, in a dispatch of March 9, 1887, agreed to the concession, provided the exclusive "right to the lessees to win pitch be limited to the pitch lake." This limitation did not suit the concessionaires, who wrote to the Government (March 31, 1887) as follows:

"I have to request you will inform his excellency that the concession, if so limited, will be practically of no value.

"We proposed, for the annual minimum sum of £10,000, Government should concede to us the exclusive right to win asphalt from the pitch lake for twenty-one years, and during that term should not grant to others the right to take asphalt from the pitch lake, nor from any Crown lands.

"The Crown lands in the vicinity of the lake have large deposits of pitch, easily obtainable and equal in quality to the lake pitch. To concede to us the right to win asphalt from the lake and at the same time to retain the right to allow the public to obtain asphalt from the Crown lands in the nighborhood of the lake is to deprive the concession to us of all value.

"You will observe that we do not ask the right to win asphalt from those lands. * * * We merely ask that in effect Government shall not allow others to do so."*

(11) Owners of outside pitch lands naturally objected to the Government taxing their asphalt $1.60 per ton and giving a monopoly of the lake at the same rate; and Lord Knutsford, recognizing the justice of the objection, proposed that the export duty should be $1.20 on all asphalt, but that the concessionaires should further pay a royalty for the concession of 40 cents per ton, making the lake asphalt cost $1.60. In a letter to the Government (April, 1890) Mr. Barber, in treating for the extension of the concession, says: "If the proposal now pending is adopted, it will be our policy to ship only from the lake, paying the royalty of 40 cents per ton, as well as the export duty of $1.20; otherwise, after taking the first 30,000 tons yearly from the pitch lake it would undoubtedly be for the advantage of the company to ship from Point d'Or. This would effect a saving to the company, and a loss to the Government, of 40 cents out of every $1.60, or one-fourth."

It is to be noted that the Point d'Or lands are now the property of the Barber company.

(12) To sum up the foregoing. For some years Mr. Barber himself got his whole supply of asphalt from Point d'Or, and it is not on record that he then found the quality of "overflow," or "land," asphalt inferior or in any way unfitted for paving purposes, and when he could not get all he desired from the Government, he even held out the threat of again taking from Point d'Or the excess quantity over what he was bound to take from the lake.

Mr. Finlayson, one of the concessionaires, and who, while owner of Point d'Or and exacting a heavy rent for it from his lessee, sought to ruin him by depreciating his asphalt, considered the outside pitch of equal value with the lake, so much so that he refused the concession unless the Government tied up the whole outside pitch lands it controlled. It is clear, therefore, that Messrs. Barber and Finlayson at one time entertained no doubt as to the outside asphalt being practically as good as lake, and it is only their desire to maintain their monopoly that makes them now assert the contrary.

(13) The Barber company and their connections strenuously maintain they have no monopoly, and that lake asphalt is a merchantable article that anyone in America can buy if they will pay the price for it. Contractors for paving work in America will best know whether they can buy asphalt from the Barber Paving Company at a price to enable them to compete on contracts with the Barber company; but I can assert that for over twenty years past it has been impossible to buy lake asphalt here for shipment to America, although the concessionaires do sell it for shipment to Europe. As an instance, on the 9th of March, 1880, my firm of A. Cumming & Co. received a cablegram from their agents in Philadelphia (Messrs. Samuel and William Welsh) asking the price at which we could ship them 1,000 tons of asphalt. My partner called on Mr. Finlayson, the then manager of the lake interests here, and, stating the inquiry, asked him if he would sell and, if so, to name a price. Mr. Finlay-

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*A more literal quotation than the above from Mr. Finlayson's letter appears heretofore.

son replied he did not care to sell for shipment to America, but he named a price which I regarded as excessive and prohibitive. We cabled it to Messrs. Welsh, however, and a reply came accepting the contract and instructing us how to ship. On waiting on Mr. Finlayson and telling him the offer was accepted and we would shortly arrange for delivery and shipment, he cooly informed us that he repudiated the offer and would refuse to deliver, as he could not sell for America at any price. We could not enforce the bargain, and had to cable Messrs. Welsh our inability to fulfill the contract. At first the firm they had acted for held us for breach of contract; but ultimately, through the great influence of Messrs. Welsh, we got off by paying all expenses incurred. We have said the concessionaires sell asphalt for shipment to England and the continent of Europe, but buyers are made to understand that if any part of each shipment goes to America they will not be supplied with more.

The supplies of "outside" or "overflow" or "land" pitch are the only obstacles in the way of the Barber company establishing a monopoly of the worst description, and, if the city authorities in America play into the company's hands by refusing such asphalt on contracts, the result will soon be seen in the greatly increased prices that will be demanded for paving work, as the control of the principal material used must necessarily carry with it a control of the work to be done.

You have asked me for an opinion as to the quantity of "outside" asphalt available from undisputed lands. I am aware that there has been much litigation as to the ownership of lands at La Brea having deposits of asphalt between the Crown and individuals; but, so far, the Crown has failed in most cases to establish that lands which had once been granted to private parties have subsequently legally reverted to the Crown, and consequently parties are now in possession and digging. The extent of such lands and also of lands with undisputed title I am not in a position to estimate; but I am aware of quite a number of contracts having been made for delivery of "outside" asphalt in quantities of from 5,000 to 8,000 tons per annum for a period of years, and I presume those parties would not make such contracts unless satisfied they could fulfill them.

I am, etc.,

J. CUMMING.

STATEMENT OF THOMAS A. FINLAYSON & CO.

TRINIDAD, *May 10, 1892.*

The Honorable W. P. PIERCE,
Consul for the United States of America.

SIR: We hope the following particulars and observations may be found of use in the report you inform us you are preparing on the subject of the pitch lake and the trade in asphalt.

The parties who held leases of portions of the pitch lake under the 1871 regulations just previous to the granting of the concession were:

	A.	*R.*	*P.*
Thomas A. Finlayson, J. W. Previté, H. A. Greig	70	3	8
New York and Trinidad Asphalt Company	39	0	28
Conrad F. Stollmeyer	2	1	31
Reserved by the Government	5	0	0
Total	117	1	27

Pressure having been put upon the Government to allow asphalt to be taken by the general public from the 5 acres reserved, Mr. Barber, who at the time largely controlled the New York and Trinidad Asphalt Company, showed, in a letter to the attorney-general dated August 1, 1887, that this would not be for the interest of the Government; and in 1888 a concession was granted to J. W. Previté, H. A. Greig, and the New York and Trinidad Asphalt Company for twenty-one years, during which time they were to have the sole right to take asphalt from the lake, and the Government engaged not to allow asphalt to be dug by other persons from the Crown lands within a radius of 3 miles from the lake. The considerations for the said concession were duly set forth in the deed granting the concession, which bears date July 12, 1888. One of the conditions was the surrendering of the existing leases, in which all concerned joined. The concession was subsequently assigned to the Trinidad Asphalt Company, which was formed for the purpose of working it. Of this company Mr. Barber has been the president since its formation.

On the 28th of July, 1891, a deed was executed by the Government extending the concession for twenty-one years further.

Surrounding the pitch lake there are large tracts of land which contain considerable quantities of asphalt. The fee simple of the greater portion of these lands has been acquired by the Trinidad Asphalt Company. The remaining portion is owned principally by the Government, there being only a small number of village lots legally in the hands of others, some of which belong to Messrs. Turnbull, Stewart & Co. and the Countess of Dundonald. The word "legally" is used because claims of the most flimsy character have been set up by different persons to portions of the lands belonging to the Crown and the Trinidad Asphalt Company, and the lands in question forcibly entered and pitch dug and removed therefrom. In some instances the same piece of land is claimed by several persons, and collisions between the laborers of the various persons claiming have not been unknown. This has resulted in a number of lawsuits, most of which are still pending, and many more will have to be entered by the Government, the most valuable pieces of Crown lands having been literally overrun.

The asphalt dug from lands outside of the lake, and generally described as land asphalt to distinguish it from lake asphalt, is inferior in quality to the latter, being very much drier, more brittle, and full of earth and foreign matter. It is becoming abundantly manifest in America that land asphalt will not make as lasting pavements as that from the lake.

One of the large properties now belonging to the Trinidad Asphalt Company, known as Point d'Or, was formerly held under lease by Mr. J. G. Douglas, who, in 1879, made a contract to supply Mr. Barber with asphalt from this place. Mr. Barber, however, shortly after, in conjunction with Mr. Douglas, made arrangements with the existing lessees of the pitch lake by which he was allowed to get his supplies from the lake. This is significant as showing that so far back as 1880 Mr. Barber recognized the superior value of the lake asphalt for paving purposes.

The statement made by the late Mr. T. A. Finlayson, in his letter to the subintendant of Crown lands, dated March 31, 1887, to which you call our attention, and which is worded thus:

"The Crown lands in the vicinity of the pitch lake have large deposits of pitch easily obtainable and equal in quality to the lake pitch"—

Must be read in connection with the object for which the letter was written. Mr. Finlayson was not discussing the relative value of lake asphalt and land asphalt for paving purposes, and was only concerned to show that the land asphalt was apparently of equal quality for selling purposes, and that in fairness the Crown should not compete with the concessionaires by selling asphalt from the lands outside of the lake. There was therefore no necessity for him to weigh his words very carefully when alluding to the quality of the asphalt. We must observe that Mr. Finlayson had not the practical knowledge of asphalt works which would render his opinion on the subject of quality of any value, and, if here to speak for himself, we are sure he would be the first to point this out. Then it must be remembered that the inferior quality of land asphalt has only been lately demonstrated after years of experience, and that at the time the letter alluded to was written the popular impression was that no difference existed between the two kinds of asphalt. The contrary view has always been maintained by Mr. Charles F. Stollmeyer, who has had practical experience in the use of asphalt, and we have shown that Mr. Barber, very shortly after his connection with Mr. Douglas, made arrangements by which to get lake asphalt instead of the other kind, which he had agreed to take from Mr. Douglas.

We inclose herewith statements showing the total shipments of asphalt from the island from 1867 to 1880 and the shipments of crude asphalt and *épurée* to Europe, America, and elsewhere from 1881 to 1891, inclusive. We also inclose a list of the cases now pending before the courts in connection with the asphalt business. Besides these, the Crown will sooner or later have to take action in at least fifteen cases in which asphalt has been or is being dug from Crown lands.

It is very difficult to estimate the area of the asphalt lands at La Brea. At a rough calculation there may be about 1,200 acres on which more or less asphalt may be found. Of these about 1,100 belong to or are controlled by the Trinidad Asphalt Company, the Government has about 70 acres, Turnbull, Stewart & Co., control about 12 acres, the Countess of Dundonald has about 6 acres, Benicourt 1 acre, Espinet 1 acre, and there are about 5 acres in small lots. The undisputed land outside that of the Crown and Trinidad Asphalt Company has been partly exhausted, and would probably not yield now more than 6 or 8 tons per annum for four or five years.

We have, etc.,

THOS. A. FINLAYSON & CO.

I also requested Mr. Carl Boos, an American citizen who represents the equally respectable house of Messrs. Harriman & Co., which for some time has been dealing extensively in asphalt, for information as to the price and supply of the commodity, and the courteous reply of that gentleman is here submitted:

TRINIDAD, *May 4, 1892.*

W. P. PIERCE, Esq.,
Consul, United States of America.

SIR: Complying with your request, I beg to state that the only firm here exporting the lake asphalt is Messrs. Thomas A. Finlayson & Co., the agents of the Trinidad Asphalt Company (A. L. Barber, president); that they will on no account and at no price sell a ton of that asphalt to anyone for export to the United States, although they sell it quite freely to anyone for export to Europe at the price of 28*s*. 6*d*. ($6.84), free on board, for crude, and at 58*s*. 6*d*. ($14.04), free on board, for *épurée*.

I have bought and am still buying from them for export to Europe, and am therefore in a position to speak as to these facts.

I may also state as an absolute fact that the prices paid here for export to the United States for land asphalt are considerably higher than the figure at which the lake asphalt may be bought for shipment to Europe (I can not give you the actual figures without disclosing the secrets of others), and this is the reason why you find so little of the land asphalt shipped to Europe. This assertion is also based on actual experience, as my firm (J. N. Harriman & Co.) is likewise a large exporter of land asphalt.

While it would be too speculative a matter for me to estimate the probable yield of the asphalt deposits on private lands, I may say, without fear of contradiction, that several hundred thousand tons might easily be won from them annually for a good number of years, the more so as the deposits are constantly being replenished. I know of several lots where this was proved beyond the possibility of a doubt; in one instance particularly, where a pit 32 feet deep, from which about 8,000 tons had been taken, filled up within five or six months, the ground becoming almost level with the surface.

The private lands I am referring to do not include those owned by either the Crown or the Trinidad Asphalt Company.

I have, etc.,

CARL BOOS.

CONCLUSION.

I have given all the foregoing details, as this report is intended chiefly for the consideration of the various city authorities in the United States who are now considering the relative merits of land and lake asphalt in connection with the letting of contracts for making streets. With this important matter in view, I thought it best to give too much information rather than too little.

I have tried to collect all the material facts, and, if I have failed, it has not been because I have failed to consult both sides to an active commercial controversy.

Had the Department not called on me to make this report, I should probably not have undertaken to do so, for the reason, if no other, that several gentlemen of fine capabilities, some in the interest of the lake asphalt and some in the interest of land asphalt and some, probably unbiased either way, have been here from the United States investigating the subject.

In conclusion, I beg to formally acknowledge courtesies in the preparation of this report from the colonial authorities and from Mr. J. W. McCarthy and Mr. George Deffentaller, at La Brea.

W. P. PIERCE.
Consul.

UNITED STATES CONSULATE,
Trinidad, June 1, 1892.

JUDGMENT OF CHIEF JUSTICE IN CASE OF STOLLMEYER VS. FEREIRA.

[Inclosure 1 in Consul Pierce's report.—From Public Opinion (Port-of-Spain) of January 12, 1892.]

This is a case where Mr. Stollmeyer, having entered an action against the defendants for damages for digging pitch upon a certain lot of land, seeks for an injunction to restrain the defendants from digging pitch in the meantime. The title or claim of title which Stollmeyer sets up is an alleged thirteen years' possession, a length of time which does not, in this colony, cut off the right of action of anyone asserting a better title; and the defendants allege by their affidavits that the lot belonged to one Accoda, who lived there, some say for twenty, some thirty, years before 1878, and that he only left the lot and the house on it when he fell ill and had to go to town to hospital, and afterwards he was in the house of refuge. This Accoda has left a daughter as his alleged heir at law, and now that pitch has been found to be valuable she has leased the land to the defendants for ten years.

Mr. Stollmeyer does not say in what manner he acquired the land. He shows no deed, and if, as appears prima facie, he simply went and took possession because the sick man had been obliged to leave, his possession can scarcely be looked upon in any very favorable light. But it is upon this alleged possession alone he claims to have an injunction against the person who alleges herself to be the rightful heir, or at least against those to whom she has demised the premises.

If the court granted the injunction, that might, and probably in this case would, practically mean that we are to deprive the person who claims to be the owner of the power of resisting an attempt to deprive her of her patrimony; for, if she is prevented from making use in the meantime of what she claims as her own, it would be almost equivalent to the deciding of the cause on the merits in favor of the plaintiff. I recollect in one case which was brought before me shortly after my arrival here an injunction had been hastily granted against a mortgagor to prevent him picking his own cocoa, and he was thus reduced to absolute penury and deprived of his only available means of showing that he was the victim of a wicked fraud. It may be said that it is the lessee in this case against whom the injunction proceeds and not the owner, but that only makes the matter worse. If it be wrong to deprive an owner of the benefits of his own property merely because his title to it has been challenged by one who may turn out to be a mere squatter, why should we interfere with the lessee carrying on his business—a perfectly honorable and praiseworthy calling—that of digging pitch, because some one with only, so far as we can see, a squatter's title himself has challenged the owner's title.

Besides, the more the case is that of the lessee the less necessity is there for the injunction, as the lessee may be presumed to be in a better position to pay damages in the event of the action going against him.

There has been much curious argument in connection with these cases upon the principles upon which the old courts of equity granted interlocutory injunctions pending the decision of the cause. But I do not think there is any real divergence of view between the parties or between cases quoted on the one side or the other. Where so much depends upon discretion, circumstances, objects, and balance of convenience it is impossible to put into any precise language the occasions on which a court will grant or withhold an injunction. Only general principles can be enunciated, leaving it to the individual court or judge to apply these principles. Mr. Warner, for the asphalt company, both in this and another case which he argued, was very earnest about this, that in order to support an injunction it was not necessary for the court to decide upon the merits in favor of the plaintiff. There can be no doubt about that if the requisite stress be laid upon the word "decide," for in the case of the Great Western Railway *vs.* the Birmingham and Oxford Junction Railway Company (2 Phillips Reports, p. 597, 1848), which he quoted, Lord Chancellor Cottenham so expressed his view of the law. But the lord chancellor's opinion was carefully balanced. He said:

"It is certain that the court will in many cases interfere and preserve property *in statu quo* during the pendency of a suit in which the rights to it are to be decided, and that without expressing, and often without having the means of forming, any opinion as to such rights. * * * It is true that the court will not so interfere if it thinks there is no real question between the parties; but, seeing that there is a substantial question to be decided, it will preserve the property until such question can be regularly disposed of. In order to support an injunction for such purpose, it is not necessary for the court to decide upon the merits in favor of the plaintiff."

There the injunction was granted, or an appeal against the granting refused; but the next great railway case where the principle of the granting of injunctions was examined was the Shrewsbury and Chester *vs.* the Shrewsbury and Birmingham Railway Company (1 Simons New Reports, p. 410, 1851), when the injunction was refused by Vice-Chancellor Cranworth. "Therefore," says the learned judge, "the first point on which the court has to be satisfied is not, as Lord Cottenham says, positively that the plaintiff is right, but that he has a fair question to raise. But I do not understand Lord Cottenham as meaning to say that in every case where there is a prima facie or probable case suggested the court will interfere. That I can not conceive to be the doctrine of the court. It would be inconsistent with what Lord Eldon says and inconsistent with common sense, for I conceive that even where it is made out that there is a point to be decided which the plaintiff is fairly raising, still there is a further question, namely, whether interim interference on a balance of convenience and inconvenience to the one party and to the other is or is not expedient." And again he adds: "The right of the court must be guided by a discretion not to exercise it where it sees that on the balance of convenience and inconvenience between interim interference and noninterim interference the balance greatly preponderates in favor of the defendant (who applied for the injunction) and against the plaintiff."

These were cases occurring before the courts of chancery at a period antecedent to high courts of justice being constituted. Now all the divisions of the court can grant injunctions, and it may be as well to see what are the principles upon which the courts now act. In the case of the Mogul Steamship Company *vs.* McGregor, Gaw & Co., before the Queen's bench division in 1885, the plaintiffs applied for an injunction against the defendants, who represented a combination, or, as it would be called in America, a trust, for the purpose of driving the steamships of the plaintiff company out of the China trade—"boycotting" them, as Lord Coleridge called it, adopting a new historical word. At first sight, nothing would seem more illegal or hurtful to the plaintiffs than such a combination, yet the interim injunction was refused for various reasons, all of which are not applicable here; but some are, including:

(1) That if the plaintiffs are right in their contention it will be competent to a jury to award damages proportionate to the extent of the injuries.

(2) That it did not appear to be a case where "irreparable" injury would be done by refusing the injunction. I see that Lord Coleridge uses the very illustration which I ventured to use at the hearing that "if a fine old ornamental tree in a nobleman's park is cut down, the injury is practically irreparable, and can not be compensated in damages."

(3) Then, further, that there were circumstances in the case which did not seem such as to warrant the court in granting the relief sought for.

Now, the ultimate issue of that case shows how much the caution of the court was justified, for, although the acts done, in the opinion both of Lord Coleridge and Lord Justice Fry, in that year of 1885 might have been offenses for which an indictment for conspiracy, and, if an indictment, then an action for conspiracy, would lie, yet opinions have ripened so fast in the contrary direction that we have learned by the mail which has arrived this week that the House of Lords has decided this important case for the defendants, the combination of shipowners, laying down the rule, far reaching and most important in all its bearings for the future, that what is not wrong for one man to do is not wrong for a combination of men to do.

In this case I can not see why we should so favor one party to a suit at the expense of the other. I feel strongly it is an application to cripple an adversary rather than to do anything that is necessary for the preservation of property or the keeping of things *in statu quo* until the trial; and the court ought to be very careful how it allows its great and extensive powers to be made use of by one litigant as a weapon against the other, and especially by the richer litigant for the purpose of tying the hands, as it were, and shutting the mouth of his poorer adversary.

We have heard, moreover, over and over again in the course of these long discussions in the pitch cases, that the object of the Government raising suits and passing ordinances to restrain persons from digging pitch on lands alleged to be Crown lands is to prevent competition in the American market against the pitch of the Trinidad Asphalt Company. This must necessarily, therefore, be the object of the Trinidad Asphalt Company itself, which applies for injunctions in some of the cases; and the person who, by his affidavit, supports the case of the plaintiff here, whether he be a real or nominal plaintiff, is the local manager at La Brea for the Trinidad Asphalt Company.

Now, a court of justice can not permit its process to be used to further interests of that nature. It can not but be clear to everyone that the injunction is the chief end and aim of raising these actions. No one, unless he had such an end in view, would have ventured to come to a court having equitable powers and to say, in effect: "I have no title to my lands in the way of deed or grant or conveyance of any description, and I have not had a sufficiently long possession to enable me to claim a title by possession; but upon that possession, insufficient as it is, I claim an injunction against the ostensible owner, in order that he at least may not make use of the property, and that will prevent him competing with me in the open market in my commercial undertakings." That is, in effect, the position of the plaintiff and what he demands here, and it is not for the protection of such objects that the courts exercise their powers of injunction. For the preservation of property the court will use its power when satisfied that that is the true object of the plaintiff, and when the plaintiff shows at least a prima facie case that he can sustain; but I am not satisfied that the preservation of property is the real object of this application, and prima facie the case of the plaintiff seems a very shadowy one. In my opinion, therefore, the interlocutory injunction must be dissolved.

DEED OF CONCESSION OF PITCH LAKE.

[Inclosure 2 in Consul Pierce's report.]

This deed made the 12th day of July, in the year 1888, between Her Majesty the Queen of the one part and Joseph Weedon Previté of No. 2 Crosby Square, in the city of London, in that part of the United Kingdom of Great Britain and Ireland called England, merchant, Henry Alfred Greig, of London, aforesaid, merchant, and the New York and Trinidad Asphalt Company, being a trading company duly incorporated under the law of the United States and of the State of New York, one of the United States (who and their respective executors, administrators, successors, and assigns are hereinafter called the concessionaires), of the other part. Whereas it has been lately agreed between Her Majesty the Queen and the concessionaires, that Her Majesty should grant to the said concessionaires such license as is hereinafter contained upon the concessionaires surrendering or procuring the surrender of the several leases by the Crown now existing of portions of the parcel of land known as the pitch lake and hereinafter described, save and except a certain lease dated the 11th day of August, 1869, and made between His Excellency Cornelius Hendricksen Kortright, esquire, administrator of the government of the island of Trinidad, of the one part, and Conrad Frederick Stollmeyer of the other part, and upon the concessionaires entering into the covenants, conditions, and stipulations herein contained. And whereas by deed of even date herewith and made between the said Joseph Weedon Previté and Henry Alfred Greig and the New York and Trinidad Asphalt Company of the first part, the Honorable Thomas Alexander Finlayson of the second part, and Her Majesty the Queen of the third part, such surrenders have been duly made. And whereas by a deed dated the 7th day of July, 1869, and made between Conrad Frederick Stollmeyer of the one part and Her Majesty the Queen of the other part, the said lease dated the 11th day of August, 1868, has been surrendered. And whereas the said parcel of land is now vested in Her Majesty absolutely free from all charges, tenancies, easements, or other the like incidents whatsoever. Now this deed witnesseth that in consideration of the premises and of the rent and the royalty hereinafter reserved and of the covenants and agreements by the concessionaires hereinafter contained, Her Majesty the Queen doth hereby grant unto the concessionaires exclusive liberty together or separately to dig, work, search for, and win all pitch, asphaltum oil, petroleum coal, anthracite rock, and asphaltic and bituminous substances and other substances whatsoever, whether animal, vegetable, or mineral, in, upon, or under the said parcel of land known as the pitch lake, containing 114 acres 2 roods 27 perches or thereabouts, and bounded on the north and west by Brighton estate, on the south partly by Brighton estate and partly by a road, and on the east by a road running from Guapo to the village of La Brea, which said parcel of land is particularly described and shown on the plan prefixed to these presents and distinguished by the color red, and all such substances as aforesaid together or separately to make fit for sale and (subject to the reservations and covenants hereinafter contained) to carry away and convert the same to their own use, and within the limits aforesaid for the purposes aforesaid, together or separately, to sink pits, open mines and quarries, dig, bore, delve, and make such erections and buildings and use all such means as shall by them be deemed expedient. Except and always reserved to Her Majesty the Queen, her heirs, successors, agents, servants, workmen, and laborers, liberty to enter upon the said parcel of land with horses, cattle, carts and carriages, and all necessary implements for the purpose of winning and carrying away such asphalt as may be required for the erection, carrying out, or maintenance of the public works of the executive Government of the island of Trinidad and its dependencies, whether the same shall be carried out by such Government or under contracts made by it. To hold and enjoy all and singular the licenses, powers, and privileges hereby granted (subject as aforesaid) unto the concessionaires from the 1st day of February now last past, for the term of fourteen years. Yielding and paying in advance during the said term the certain yearly rent of £10,000 on the 1st day of February in each year (the first of which payments was duly made on the 10th day of February last), in respect of the first 30,000 tons of asphalt (either raw or converted into *épurée*) to be won and carried away during such year, whether they shall actually be so or not (such quantity to be ascertained according to such regulations as may from time to time be made by the governor or officer then administering the Government of Trinidad in pursuance of the authority conferred on him by the ordinance No. 1 for the year 1888, and intituled "An ordinance to increase the duties payable on asphalt or pitch"): Provided always that out of each such sum of £10,000 Her Majesty's receiver-general in Trinidad or other person duly authorized to receive the same on behalf of Her Majesty, her heirs and successors, shall pay all export duties payable in respect of 30,000 tons of asphalt won from the said pitch lake by the concessionaires, exported by them after payment of such sum of £10,000 and also all other taxes, rates, charges, duties, and assessments whatsoever, which now are or hereafter shall be charged or assessed upon the same. And yielding and paying for every ton of asphalt (over and above the quantity of 30,000 tons) which shall during any one year be won and carried away from the said lake the royalty of 1*s*. 8*d*., payable on the last day of such year if the same shall not have been exported, but if exported, then upon exportation (and such quantity shall be ascertained in manner aforesaid): Provided always that if in any year or years the concessionaires shall not actually win and carry away the said quantity of 30,000 tons, they may, whenever such deficiency shall happen, win and carry away in any subsequent year or years of the said term or of any term to be granted in pursuance of these presents a sufficient quantity, in excess of the quantity of 30,000 tons, to make up the deficiency without paying any rent or royalty in respect to the same other than the said certain yearly rent of £10,000: Provided always, and these presents are upon this express condition, that the concessionaires shall be at liberty to elect not to pay the yearly rent of £10,000 hereby reserved, and if the same or any part thereof shall be in arrear for sixty days, whether the same shall have been legally demanded or not, the several licenses, powers, and privileges hereby given and every article, clause, matter, and thing herein contained shall absolutely cease and determine on the last of such sixty days, but without prejudice to any claim either of Her Majesty, her heirs and successors, or of the concessionaires arising out of these presents other than a claim for payment of such rent of £10,000, and (this present clause being intended not only for the benefit of Her Majesty, her heirs and successors, but also for the benefit and protection of the concessionaires and each one of them) no expression of intention nor any other act or proceeding whatsoever on the part of Her Majesty, her heirs and successors, or on the part of the concessionaires, shall be necessary for the purpose of effecting such absolute determination, nor shall any act or proceeding on the part of any one of the concessionaires prejudice the right of any other of them to treat such determination as absolute. And further, if during any such period of sixty days or at any time thereafter the concessionaires or any of them shall win or carry away any asphalt from the said lake, they or he shall pay by way of royalty thereon (the quantity to be ascertained in manner aforesaid) the sum of 1*s*. 8*d*., in the same manner in all respects as is hereinbefore provided, to be paid in respect of asphalt in excess of 30,000 tons, and such winning or carrying away asphalt shall not in any manner affect the election of the concessionaires and of each of them to effect such absolute determination, nor shall it create a tenancy from year to year: Provided always and it is hereby declared that if and whenever any royalties hereby reserved shall be in arrear for sixty days, whether the same shall have been legally demanded or not, or if any, whenever there shall be a breach of any of the covenants and agreements by the concessionaires herein contained, and after Her Majesty, her heirs and successors, shall have given to the concessionaires such provisional notice and such default shall have been made as are herein after respectively mentioned, it shall at any time thereafter be lawful for Her Majesty the Queen, her heirs and successors, by notice in writing to be given to the concessionaires, to revoke and determine the several licenses, powers, and privileges hereby given, and immediately after any such notice, every article, clause, matter, and thing herein contained shall absolutely cease and determine, but without prejudice to any claim, either of Her Majesty, her heirs and successors, or of the concessionaires, arising out of these presents other than a claim for payment of any such rent of £10,000 as aforesaid: Provided always that no such notice shall be given until a provisional notice in writing shall have been given to the concessionaires calling upon them to rectify such matters as aforesaid, and default shall have been made in so doing for six calendar months from the time of such provisional notice being served, and the concessionaires do hereby covenant with Her Majesty, her heirs and successors, that they will for the better and more correctly ascertaining the amount of asphalt which shall be won and carried away from the said lake keep full and true books of account to be open at all times for the inspection and taking copies thereof by such persons on behalf of Her Majesty, her heirs and successors, as may be authorized for the purpose by the governor or officer administering the government of Trinidad for the time being, wherein they will from time to time set down and enter the quantities (as far as the same can be reasonably ascertained at the time of shipping or, if not shipped, of the carrying away of the same of the asphalt won and carried away from the said lake, 1 ton of *épurée* being reckoned as equal to 1½ tons of raw asphalt) and the weight thereof and the vessels with their names and tonnage on which, and the places for which such part of the same as has been shipped shall have been shipped, every such account being verified by a declaration in writing under the hands of the concessionaires or of their agent authorized for that purpose. And will in each year during the said term at the request of such governor or officer as aforesaid supply to him at the shipping place at the village of La Brea aforesaid such quantity of asphalt as may be required for the erection, carrying out, or maintenance of the public works of the executive Government of the island of Trinidad and its dependencies, whether the same shall be carried out by such Government or under contracts made by it, free of all costs save and except the cost of digging and carting the same to the said shipping place. And it is hereby declared that if the concessionaires shall at the expiration of the said term of fourteen years have paid as and for royalties hereby reserved on an export duty to be paid on asphalt in excess of the said annual quantity of 30,000 tons a sum of £28,000 over and above the said certain rent of £10,000 or (if they shall not have so done) shall forthwith pay the sum of £28,000 or such sum as together with what they have already paid shall amount to such sum of £28,000. And if the concessionaires or any or either of them shall be desirous of having a renewal of the licenses, powers, and privileges hereby granted for the further term of seven years and of such desire shall prior to the expiration of the said term of fourteen years give to the governor or officer administering the government of Trinidad for the time being, three calendar months' notice in writing and shall have paid the rents and royalties hereby reserved and have observed and performed the several covenants and agreements herein contained and on the part of the concessionaires to be observed and performed up to the expiration of the said term of fourteen years or shall, on receipt of such a provisional notice as hereinbefore mentioned, be willing to rectify the matters to be mentioned therein within the time hereinbefore provided, then Her Majesty, her heirs and successors, will, upon the request and at the expense of such of the concessionaires as shall give such notice, grant a renewal of such licenses, powers, and privileges for the further term of seven years at the same yearly rents and royalties as are hereby reserved and under and subject to the same covenants, provisos, and agreements as are herein contained other than this present proviso to all the concessionaires who shall have given such notice. And it is hereby declared (1) that so long as the licenses, powers, and privileges hereby granted shall continue in force by virtue of these presents or by virtue of any renewal granted pursuant to these presents no asphalt, pitch, or other asphaltic or bituminous substance shall be won or carried away for export or otherwise by Her Majesty, her heirs or successors (except for the purposes hereinbefore mentioned), or by any other person for any purpose whatsoever from any lands situate within 3 miles of the said parcel of land known as the pitch lake which now are or at any time during the said term or terms shall come into the possession of Her Majesty without the previous consent in writing of the concessionaires; (2) that if during the said term of fourteen years or the said further term of seven years (should such renewal as aforesaid be granted) the concessionaires shall lay down upon the said parcel of land known as the pitch lake or on other lands vested in Her Majesty the Queen and at the expiration of the said term or further term shall have in use any tramways, piers, breakwaters, or other improvements for convenience in transporting asphalt from the said lake and loading the same upon vessels (such works being of the value of £5,000 at the least) Her Majesty's receiver-general in Trinidad shall repay and refund to the concessionaires the value of such tramways, piers, breakwaters, or other improvements: Provided that if the total amount paid as such royalty shall be less than such value the concessionaires shall not be entitled to more than such total amount: Provided always that if upon the expiration of the said further term of seven years for which the said licenses, powers, and privileges shall have been renewed in manner aforesaid Her Majesty, her heirs and successors, should be graciously pleased to grant in lieu of such payment as aforesaid a further renewal of such licenses, powers, and privileges for a further term of ten years or more, whether upon the same terms and conditions as are contained in these presents or upon other terms and conditions to be hereafter agreed upon, no compensation shall be paid in respect of the same works. And it is hereby expressly declared to be a condition of the execution of these presents and of the hereinbefore mentioned deed of surrender of even date herewith that so long as the said licenses, powers, and privileges shall continue in force under the provisions of these presents, or any such renewals thereof as aforesaid, the duties to be levied upon the export from the island of Trinidad of asphalt in a crude state, liquid asphalt in a crude state, and asphalt boiled (whether the same shall or shall not be exported by the concessionaires) shall be the duties and additional duties made payable by "the asphalt, pitch and petroleum duty ordinance, 1885," and the ordinance No. 1 of the year 1888, intituled "An ordinance to increase the duties payable on asphalt and pitch," and that such duties and additional duties shall be neither increased nor diminished and that no act or ordinance of the said legislative council of Trinidad which shall in any way vary the amount of such duties and additional duties during such period as aforesaid shall receive the royal assent. In witness whereof Her Majesty the Queen hath caused to be affixed hereto the public seal of her said island of Trinidad, and the said Joseph Weedon Previté, Henry Alfred Greig, and the said New York and Trinidad Asphalt Company have respectively executed this deed by their attorney, Thomas Alexander Finlayson, of the town of Port-of-Spain, in the said island of Trinidad, the day and year first above written.

THOS. A. FINLAYSON,
Attorney of Joseph Weedon Previté and of Henry Alfred Greig.

Signed, sealed, and delivered by Thomas Alexander Finlayson as the attorney and for and in the name and as the act and deed of the above-named Joseph Weedon Previté and Henry Alfred Greig in the presence of

A. C. ROSS,
Clerk Legislative Council.

THE NEW YORK AND TRINIDAD ASPHALT COMPANY,
By their attorney, Thos. A. Finlayson.

Signed, sealed, and delivered by Thomas Alexander Finlayson, of Port-of-Spain, as the attorney and for and in the name and as the act and deed of the New York and Trinidad Asphalt Company in the presence of

A. C. ROSS,
Clerk Legislative Council.

Executed before me,

S. H. GATTY,
Barrister at Law.

WILLIAM ROBINSON,
Governor of Trinidad.

EXTENSION OF THE CONCESSION.

[Inclosure 3 in Consul Pierce's report.]

This deed made the 28th day of July, in the year 1891, between Her Majesty the Queen of one part and the Trinidad Asphalt Company, being a trading company duly incorporated under the law of the United States and of the State of New Jersey, one of the United States, having a principal office at No. 1 Broadway in the city, county, and State of New York, one of the United States (who together with their successors and assigns are hereafter called "the company"), of the other part supplemental to a deed dated the 12th day of July, 1888, and made between Her Majesty the Queen of the one part and Joseph Weedon Previté, Henry Alfred Greig, and the New York and Trinidad Asphalt Company (hereinafter called "the concessionaires") of the other part (which deed is hereinafter called "the concession"). Whereas by a deed dated the 12th day of June, 1889, and made between the concessionaires of the one part and the company of the other part, all the licenses, powers, and privileges granted to the concessionaires by the concession were assigned to the company for all the residue then unexpired of the term of fourteen years granted by the concession, and any renewal thereof, subject to the rent and royalties reserved by the concession and under and subject to the covenants, conditions, and provisos in the concession contained, and which thenceforth on the part of the company ought to be observed and performed. And whereas it has been agreed that if the said licenses, powers, and privileges shall be renewed for the term of seven years from the first day of February, 1902, then Her Majesty the Queen will, at the expiration of the said term, grant to the company such a further renewal of the said licenses, powers, and privileges as is hereinafter mentioned: Always provided, nevertheless, that the conditions hereinafter appearing shall have been fulfilled. Now this deed witnesseth that if before the 1st day of February, 1909, in addition to the sum of £10,000, which has been recently invested in the purchase of the sum of £10,363 of 3 per cent India stocks intended to be held upon trusts declared by a deed bearing even date with these presents and made between Her Majesty the Queen of the first part, the company of the second part, and Sir Montagu Frederick Ommanney, Ernest Edward Blake, Joseph Weedon Previté, and Henry Alfred Greig of the third part, and in addition to the minimum sum of £140,000, payable during the term of fourteen years commencing from the 1st day of February, 1888, the sum of £28,000, payable in respect of the renewal of the said licenses, powers, and privileges, for the term of seven years commencing from the 1st day of February, 1902, and the minimum sum of £70,000, payable during the said term of seven years, which three last-mentioned sums together amount to the sum of £238,000, there shall have been during the term of twenty-one years commencing from the first day of February, 1888, paid to Her Majesty any additional sums of money, whether by way of rent, royalties, export duty, or otherwise, in respect of the said licenses, powers, and privileges, or if on the said 1st day of February, 1909, there shall be paid by the company to Her Majesty the Queen any additional sum or sums of money other than the sums so payable as lastly above mentioned, and if the company shall have observed and performed the several covenants and agreements in the concession contained and on the part of the company to be observed and performed up to the said 1st day of February, 1909, or shall on receipt of such a provisional notice as is in the concession mentioned be willing to rectify the matters to be mentioned therein within the time in the concession provided, then Her Majesty the Queen will, upon the request and at the expense of the company, grant to the company a renewal of the said licenses, powers, and privileges at the same yearly rents and royalties as are by the concession reserved and under and subject to the same covenants, provisos, and agreements as are in the concession contained, save as hereinafter provided, for an additional year in respect of each £4,000 of such additional sums of money so paid as aforesaid: Provided always that the term of such renewal shall in no case exceed twenty-one years. And it is hereby declared that the said renewal of the said licenses, powers, and privileges shall for all purposes be deemed to be a renewal thereof granted pursuant to the concession within the meaning thereof: Provided always, and it is hereby declared, that the provisions of the concession entitling the concessionaires to elect not to pay the yearly rent of £10,000 by the concession reserved and to so determine the concession shall not be applicable to any renewal thereof for any term commencing from the 1st day of February, 1909, granted in pursuance of these presents, and any such term for which the said licenses, powers, and privileges shall be so renewed as aforesaid shall not be determinable by the company for any other reason than that the pitch lake has failed to give an annual supply of 30,000 tons of asphalt, except after one year's notice in writing to expire on the 31st day of January, to be given by the company to the governor or officer administering the government of Trinidad for the time being or on payment in lieu of such notice of a fine of £15,000: Provided also, and it is hereby expressly declared, that if in pursuance of these presents a renewal of the said licenses, powers, and privileges shall be granted for any term of at least ten years, commencing from the first day of February, 1909, no compensation shall be paid to the company in respect of any tramways, piers, breakwaters, or other improvements for convenience in transporting asphalt from the pitch lake and loading the same upon vessels, whether such works shall have been laid down by the company or the concessionaires or either of them, nor shall the company be entitled to any further renewal of the said licenses, powers, and privileges in lieu of the payment of any compensation in respect of the same works.

In witness whereof Her Majesty the Queen hath caused to be affixed hereto the public seal of her said island of Trinidad and the Trinidad Asphalt Company have caused their common seal to be affixed hereto the day and year first above written.

[SEAL.] WILLIAM ROBINSON,
Governor.

[SEAL.] AMZI LORENZO BARBER.
DELOS OLCOTT WICKHAM.
FRANCIS VINTON GREENE,
Secretary.

The common seal of the Trinidad Asphalt Company was hereunto affixed by the authority of the directors of the said company and in the presence of Amzi Lorenzo Barber, of the village of Edgewater, county of Richmond, in the State of New York, in the United States of America, merchant, and Delos Olcott Wickham, of No. 230 West Fifty-ninth street, city of New York, in the State of New York, merchant, two of the directors of the said company, and in the presence of and countersigned by Francis Vinton Greene, of the village of Edgewater, county of Richmond, in the State of New York aforesaid, civil engineer, as secretary of the said company, in the presence of Newton Clark Lyon, of Passaic, county of Passaic, in the State of New Jersey, clerk.

NEWTON CLARK LYON.

THE GUARANTY.

[Inclosure 4 in Consul Pierce's report.]

This deed made the 28th day of July, in the year 1891, between Her Majesty the Queen of the one part and the Trinidad Asphalt Company, being a trading company duly incorporated under the law of the United States and of the State of New Jersey, one of the United States, having a principal office at No. 1 Broadway in the city, county, and State of New York, one of the United States (hereinafter called "the company") of the other part, supplemental to a deed dated the 12th day of July, 1888, and made between Her Majesty the Queen of the one part and Joseph Weedon Previté, Henry Alfred Greig, and the New York and Trinidad Asphalt Company (hereinafter called "the concessionaires") of the other part (which deed is hereinafter called "the concession"). Whereas by a deed dated the 12th day of June, 1889, and made between the concessionaires of the one part and the company of the other part, all the licenses, powers, and privileges granted to the concessionaires by the concession were assigned to the company for all the residue then unexpired of the term of fourteen years granted by the concession and any renewal thereof, subject to the rent and royalties reserved by the concession and under and subject to the covenants, conditions, and provisos in the concession contained, and which thenceforth on the part of the company ought to be observed and performed. And whereas in consideration of the execution of a deed bearing even date with these presents, and made between Her Majesty the Queen of the one part and the company of the other part, the company have agreed to enter into such covenants as are hereinafter contained. Now this deed witnesseth that in pursuance of the said agreement and in consideration of the premises the company do hereby covenant with Her Majesty the Queen that during the said term of fourteen years there shall be paid to Her Majesty the Queen under the concession, either as rent, royalties, export duty, or otherwise, the minimum sum of £140,000. And it is hereby declared that in calculating the said sum of £140,000 the company shall be credited with all payments already made to Her Majesty the Queen under the concession, whether by the concessionaires or by the company, either as rent, royalties, export duty, or otherwise. And the company do hereby further covenant with Her Majesty the Queen that if before the 1st day of February, 1892, there shall not have been paid the sum of £100,000 towards the said sum of £140,000 calculated as aforesaid, in addition to the sum of £10,000 which has been recently invested in the purchase of the sum of £10,363 3 per cent India stocks, intended to be held upon trusts declared by a deed bearing even date with these presents, and made between Her Majesty the Queen of the first part, the company of the second part, and Sir Montagu Frederick Ommanney, Ernest Edward Blake, Joseph Weedon Previté, and Henry Alfred Greig of the third part, then the company shall on that day execute in favor of Her Majesty the Queen a mortgage in the form set forth in the schedule hereto. And it is hereby declared that the balance of the said sum of £100,000 remaining unpaid may be at any time before the 1st day of February, 1892, paid by the company to Her Majesty the Queen in satisfaction of the covenant lastly hereinbefore contained, and the same shall be credited to the company as against future payments to be by them from time to time made to Her Majesty the Queen under the concession, but shall not in any case be repaid to the company.

In witness whereof Her Majesty the Queen hath caused to be affixed hereto the public seal of her said island of Trinidad and the Trinidad Asphalt Company have caused their common seal to be affixed hereto the day and year first above written.

[SEAL.] WILLIAM ROBINSON,
Governor.

[SEAL.] AMZI LORENZO BARBER.
DELOS OLCOTT WICKHAM.
FRANCIS VINTON GREENE,
Secretary.

The common seal of the Trinidad Asphalt Company was hereunto affixed by the authority of the directors of the said company and in the presence of Amzi Lorenzo Barber, of the village of Edgewater, county of Richmond, in the State of New York, in the United States of America, merchant, and Delos Olcott Wickham, of No. 230 West Fifty-ninth street, city of New York, in the State of New York, merchant, two of the directors of the said company, and in the presence of and countersigned by Francis Vinton Greene, of the village of Edgewater, county of Richmond, in the State of New York aforesaid, civil engineer, as secretary of the said company, in the presence of Newton Clark Lyon, city of Passaic, county of Passaic, in the State of New Jersey, clerk.

NEWTON CLARK LYON.

TRADE AND COMMERCE OF NATAL.

REPORT BY CONSULAR AGENT HOLLIS, OF DURBAN.

IMPORTS.

During the three months ended March 31, 1892, one hundred and thirty-five vessels, of a total tonnage of 146,068 tons, arrived at the Port of Durban, bringing cargoes valued at the total amount of $5,208,254.81. Of this amount, $206,325 worth, or about 4 per cent of the total, came from the United States direct by sailing vessels.

For the nine months ended March 31, 1892, the imports from the United States amounted to $632,353, as against $612,473.36 worth imported during the twelve months ended June 30, 1891, an increase for the nine months over the previous twelve months of about $20,000.

The imports from the United Kingdom during the past nine months amounted to $11,038,531.09, and the imports from that country for the twelve months ended June 30, 1891, to $14,042,631.27.

For the year ended June 30, 1891, exactly 3.42 per cent of the total imports of this colony came from the United States and 79.7 per cent came from England. During the past quarter 3.96 per cent came from the United States and 79.53 per cent from England.

A considerable amount of goods of American production come to this port by steamer via England; but the figures covering these goods can not be obtained, as they are set down in the customs returns as imports from England.

The great bulk of the American imports comes to this port by sailing vessel direct from the United States, and when one considers that it takes an order five weeks to reach New York or Boston; that it takes several weeks to fill the said order, charter the vessel, and load it; and that it takes a sailing vessel all the way from seventy days to four months to reach this port from New York or Boston, it can well be understood how it is that the share of the United States in the Natal trade is not larger than it is. On the other hand, England is in direct steam communication with this port. Five steamship lines run between the two countries, and a sixth company is just starting, while a German line runs monthly steamers from this port to Hamburg, via the east coast and the Suez Canal. If there was a direct line of steamers running between the United States and the various South African ports, the American exporters would be enabled to extend their trade here wonderfully.

A number of staple lines of goods are at present imported exclusively from England and the Continent, and in these lines there is no American competition. Take, for instance, ale and beer, of which $82,000 worth is imported, as shown in the table of imports. If American beer was pushed in this market and could be shipped and forwarded with dispatch, it would take well, provided it was bottled in the same sized bottles as the English and German beers. American spirits, apothecary ware (drugs, chemicals, perfumes, etc.), plated ware, flour, glassware, firearms, machine tools, and a number of other articles could also be introduced in this market.

Table showing the principal imports into the colony of Natal during the quarter ended March 31, 1892.

Articles.	Value.	Articles.	Value.
Agricultural implements	$26,600.00	Plate and jewelry	$16,500.00
Ale and beer	82,000.00	Preserved and canned provisions and fruit	89,000.00
Apparel and slops	519,000.00	Saddlery and harness	25,000.00
Apothecary ware	200,000.00	Soap	36,000.00
Cabinet and upholstered wares	88,000.00	Spirits of all kinds (71,706 imperial gallons)	140,000.00
Coffee	141,000.00	Stationery	50,000.00
Flour, meal, and bran	219,000.00	Tobacco and cigars	30,000.00
Glass and glassware	40,000.00	Woolen manufactures and goods	160,000.00
Guns and pistols (943 in number)	12,500.00	Wine	33,500.00
Dry goods	420,000.00	All other articles not otherwise specified	1,816,154.81
Iron of all sorts	263,000.00	Total	5,208,254.81
Leather, manufactured	320,000.00		
Machinery	200,000.00		
Oilmens' stores	118,000.00		
Oils of all kinds (278,757 imperial gallons)	73,000.00		

EXPORTS.

During the past quarter this colony exported goods of the total value of $2,206,663.57. About three-fourths of these exports went to England and about one-sixth was exported overland to the interior states. Of wool $21,126.73 worth and $1,623.66 worth of goatskins went to the United States by steamer via England. These amounts are not shown in either of the tables, for the reason that the said tables are taken from the Natal customs returns; and in these returns all goods going to England are classed as exports to England, irrespective of their final destination.

The largest product of the colony exported was wool, to the amount of $994,000 worth, though this is a slight falling off from the amount shipped during the corresponding quarter last year, caused, I am informed, by the farmers holding back their wool in the hope of getting better prices later on.

There has been considerable inquiry from the United States lately for particulars about the Natal wools, and a number of firms here have informed me that they are making arrangements to ship wool to the United States, and that they anticipate a large trade during the coming season. Here, too, the necessity of direct steam communication is realized, for I am also informed that a much larger trade could be done if there was a direct steam line to the United States. At present goods going by steamer from here to the United States have first to go to England and thence transshipped by other steamers to the United States, and freight rates consequently rule high. At present the average rate from Durban (Natal) to New York is 1 cent per pound and 10 per cent primage. The desire for quick dispatch is such that now shippers will not look at a sailing vessel, and many that would take freights at low rates have to go away in ballast.

Next on the list of exports comes raw sugar, 38,430 cwts., valued at $110,000, having been shipped during the quarter. The greater part of this sugar went to England, though considerable quantities went to Cape Colony and other South African states. Although the sugar industry is not yet out of the experimental stage, enough is raised and refined to supply the wants of the colony and to leave a surplus for export. As the sugar-growers get to better understand the business more sugar is sure to be raised, and in all probability this colony will before long have a good standing as a sugar producing and exporting country.

Coal follows on the list, 14,382 tons, valued at $68,300, having been exported during the quarter. Of this amount 9,000 tons were shipped during the month of March, almost all of which was bunkered for steamship consumption. A number of coal mines are being worked at present in Natal, but the Dundee mine leads them all, both in quality and quantity of output. All the coal exported was from the Dundee mine, as is about nine-tenths of all the coal consumed in the colony. The quality of the coal from this mine is steadily increasing as it is deepened and opened out, and at present writing tests by engineers of this coal under steamship boilers show that its consumption is about equal to Scotch and only about 7 per cent more than the best Welsh. The output of this mine for the month of March was 12,000 tons and for the quarter 31,040 tons. This mine has contracts with sixty-three different steamship companies and owners to coal all their vessels coming to this port. The British and Portuguese Governments make this their principal coaling port in southeast Africa, and during the past quarter three English and two Portuguese men-of-war coaled here. The increase in the coal trade has been so great that the Dundee company has had to put down two more shafts, and are thus enabled to double their output. An extensive electric plant is also being introduced into this mine, and before long all drilling and lighting will be done by electricity. It can safely be said that any vessel, no matter what her capacity is, can be speedily coaled at this port, even if her arrival is unexpected and without notice. Supplying first-class coal at a cost of about $5 per ton, this port bids fair to become the best coaling station in the Indian Ocean.

Next to coal come ox and cow hides, to the number of 52,415, valued at $43,000, followed by 96,297 sheep, calf, and goat skins, valued at $20,000.

The lead, silver, and gold ores shown in the table were mined in the interior states and shipped through this port.

Other articles appear in the table which, although small in amount at present, are sure to come to the front some day as large products of this colony, viz, bark (black wattle) and tea.

One of the smallest items in the table is that of plants and bulbs—$75 worth. This item seems to be almost too small to be worth mentioning.

but it may be of interest, however, to the large number of people in the United States who deal in these articles and to the larger number who are regular purchasers of the same. During the September quarter of 1891 $1,643 worth of bulbs were shipped from this port to the United States, but I have been unable to find out how they were received in the American market. There are many plants and bulbs that are indigenous to this colony only, and many of them are of great beauty. The American florists have a good field here to obtain many rare and unique specimens.

Table showing the principal exports from the colony of Natal during the quarter ended March 31, 1892.

Articles.	Quantity.	Value.
Arrowroot … cwts	31	$150.00
Coal … tons	14,382	68,300.00
Bark … packages	3,723	6,845.00
Coffee … pounds	1,270	250.00
Ostrich feathers … do	58	650.00
Flour, meal, etc … do	41,400	480.00
Straw … cwts	143	225.00
Fresh fruit … packages	818	1,500.00
Maize … cwts	2,356	2,300.00
Angora hair … pounds	49,435	8,000.00
Ox and cow hides … number	52,415	43,000.00
Buck horns … do	30	100.00
Ox and cow horns … tons	73	4,250.00
Ivory … pounds	2	50.00
Lead ore … packages	3,547	17,350.00
Gold quartz … do	23	130.00
Silver ore … do	1,250	6,400.00
Plants and bulbs … do	116	75.00
Calf, sheep, and goat skins … number	96,297	20,000.00
Rum … gallons	50,819	7,500.00
Raw sugar … cwts	38,430	110,000.00
Molasses … do	83	380.00
Tea … pounds	25,248	5,500.00
Wool, greasy … do	7,754,780	994,000.00
Other products not otherwise specified		414,273.56
Overland in transit		314,955.01
Total		2,026,663.57

HARBOR WORKS.

During the past quarter the bar depths have steadily increased, and over four-fifths of the steamships and all the sailing vessels arriving at this port have come inside.

The average bar depth at L. W. O. S. T. for the year ended December 31, 1891, was 10 feet 9 inches, and for the past five months (November, 1891, to April, 1892) as follows: November, 12 feet 10¾ inches; December, 13 feet 0½ inch; January, 13 feet 6¾ inches; February, 14 feet; March, 13 feet 11 inches; and for the month of April up to date, 14 feet 2 inches.

The following table shows the names, tonnage (net), and date of the largest vessels brought into the inner harbor during the past quarter:

Name.	Date.	Tons.	Draft.	
			Feet.	*Inches.*
Dumobin Castle (steamship)	Jan. 5	1,778	17	8
Crown	Jan. 8	653	17	6
Umlazi (steamship)	Jan. 19	1,140	17	6
Gipsy Queen	Jan. 31	453	17	0
Strathesk (steamship)	Feb. 10	1,454	19	4
Umkuzi (steamship)	Feb. 13	1,300	18	5
Chupra (steamship)	Feb. 16	1,432	17	6
Inyoni (steamship)	Feb. 20	1,250	17	6
Lucina (steamship)	Mar. 3	1,689	19	9
Umhloti (steamship)	Mar. 3	1,397	18	0

On April 4 the Dutch bark *Thorbecke IV*, 911 tons, drawing 16 feet 8 inches, was brought inside.

SHIPPING.

Table showing number and tonnage of ships entered and declared value of goods imported during quarter ended March 31, 1892.

From—	Vessels entered.		Value of imports.
	No.	Tons.	
United Kingdom	16	17,516	$4,141,805.15
Bombay, via Calcutta			30,206.37
Calcutta	6	4,388	138,378.93
Madras, via Calcutta			2,919.90
Rangoon	2	3,315	14.60
Cape Colony	60	92,506	74,058.39
Mauritius	1	2,029	5,036.82
South Australia	6	2,196	200,144.55
Germany, via Cape Colony			103,593.19
Holland, via Cape Colony			62,086.80
Portugal, via Cape Colony			2,696.04
Sweden	10	4,671	97,831.25
Beira, via Delagoa Bay			452.58
Delagoa Bay	24	15,812	21,290.94
Inhambane	1	50	2,146.13
Madagascar	1	35	452.58
Madeira, via Cape Colony			666.71
Mozambique, via Delagoa Bay			676.44
Quilimane, via Delagoa Bay			24.33
Zanzibar, via Delagoa Bay			92.46
United States	6	2,910	206,325.00
Brazil	2	640	117,355.65
Total	135	146,068	5,208,254.81

Table showing number and tonnage of ships cleared and declared value of goods exported during quarter ended March 31, 1892.

To—	Vessels cleared.		Value of exports.
	No.	Tons.	
United Kingdom	7	8,012	$1,510,138.21
Bombay	1	256	1,270.12
Burmah	1	1,555	3,649.87
Calcutta	3	1,714	749.44
Ceylon	7	10,427	18,322.37
Cochin	1	1,454	2,433.25
Rangoon	2	2,122	1,484.28
Cape Colony	46	65,342	69,235.70
Mauritius	7	9,550	5,392.08
Barbados	8	3,559	111.93
South Australia	1	294	10.46
Germany	....	....	1,172.82
Victoria	1	385	26,751.15
Holland	....	....	146.00
Celebes	2	1,120	296.85
Guahan	8	3,056	238 46
Beira	1	1,349	16,589.90
Chinde Mouth	....	....	885 70
Delagoa Bay	26	17,558	45,073.52
Inhambane	....	....	3,985 66
Madagascar	4	7,299	....
Mozambique	....	....	82.73
Quilimane	....	....	243.32
United States	2	746	53.53
Brazil	3	3,662	3,260.55
South Seas	3	1,620	121.66
Exported overland in transit	....	....	314,955.01
Total	....	....	2,026,663.57

W. STANLEY HOLLIS,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Durban (Natal), April 25, 1892.

AFFAIRS IN GIBRALTAR.

REPORT BY CONSUL SPRAGUE.

The exceptional activity which was ruling in this market a few weeks since in the demand for American tobacco for the purpose of being smuggled over the Spanish lines, as reported in my communication of the 27th of April last, has suddenly ceased with the revival of the previous rigorous measures adopted, thereby rendering the contraband trade at present one of considerable risk and uncertainty. It is also reported that the several officials connected with the Spanish revenue departments, through whose medium it is supposed the late slackness had occurred, have lately been called upon to account for their apparent neglect of duty—not a rare occurrence in the annals of Spanish administration.

Encouraged by the recent activity in the tobacco trade here, considerable supplies of the weed, chiefly Hungarian descriptions, are now reaching this market; though arriving after the fair, they are now being stored to await more favorable opportunities for disposal, which sooner or later may occur.

Important supplies of flour have been regularly arriving at this port direct from New York by British and Italian steamships, and are at present meeting the largest portion of the local wants of this town and neighborhood.

It is probable that the Black Sea ports will soon be reopened for the exportation of wheat to foreign markets, and it is possible that American flour may later on in consequence experience a renewal of the usual foreign competition when the British and French markets may again be placed in a position to supply this and other foreign markets with flour from their own mills.

The crops of cereals in Morocco so far promise well, though the reappearance of the locust causes some anxiety in various parts of that Empire.

In Spain the condition of the crops is not favorable. Heavy rainfalls and serious inundations have caused so much havoc that the outlook for this year's crops is not encouraging.

By the accompanying table it will be perceived that the Italian emigration to the United States still continues unabated and is likely to last throughout the summer months, which speaks unfavorably as regards the condition of the internal affairs of the Kingdom of Italy.

Table showing the number of emigrants on board of steamships that have entered the port of Gibraltar bound for the United States during May, 1892.

Name of vessel.	Date.	Nationality.	From—	Destination.	Number of passengers.
Elysia	May 6	British	Naples	New York	984
Fulda	May 6	German	Genoa	do	763
Giava	May 11	Italian	Sicily	New Orleans	459
Entella	May 11	do	Sicily and Naples	New York	503
India	May 18	British	Naples	do	728
Arno	May 25	Italian	Sicily and Naples	do	672
Werra	May 27	German	Genoa	do	521
California	May 30	British	Sicily and Naples	do	917
Total					5,547

HORATIO J. SPRAGUE,
Consul.

UNITED STATES CONSULATE,
Gibraltar, June 1, 1892.

THE HOP PRODUCT OF GERMANY AND EUROPE.

REPORT BY CONSUL-GENERAL MASON, OF FRANKFORT.

In the last report from this office (August 15) on the condition of the hop vines in Germany and the outlook for the crop of the present year it was stated that the weather during the whole of July and the first half of

August had been exceptionally hot and dry, and that, as a result of these conditions, the hop vines were at that time in many districts shorter and less luxuriant in growth than is usual in an average year. The heat and drought continued unabated until the 31st of August, the temperature ranging as high as 101° and even 104° F. in the shade as far north as Hamburg and Bremen. The 1st of September brought local rains and an abrupt fall in temperature, since which time the weather has been unseasonably cold and cloudy.

As a direct result of the intense and protracted heat, the disease known in Germany as "Kupfer-brand" (red rust) attacked the hops in many localities; but how general or severe the injury has been to the maturing crop can not be accurately known until the close of the harvest, which will be finished in the South German states by the 20th of September, a week or ten days earlier than in ordinary years.

But, although the precise extent of this damage can not yet be precisely stated, the fact is recognized that both the quantity and quality of this year's product will be affected thereby and will fall below the most accurate estimates of twenty days ago, at which time it was hoped that more abundant rains during the last month before harvest would secure a crop nearly up to the average in quantity and of uniformly excellent quality. The condition of the hop market, particularly in England and the United States, has given the question of the European product extraordinary interest at the present moment, and there is herewith submitted a schedule of the net European hop crop for the current year. The best authorities still differ slightly in their predictions, for in such matters the opinions of experts are controlled to some extent by their interests; but, in so far as official returns and the best commercial judgment can be collated and harmonized, they indicate that the product of the several hop-producing countries of Europe will be approximately as follows, the statistics being in metric pounds, or half kilograms, which are one-tenth greater than American pounds.

Country.	Quantity.	Country.	Quantity.
Germany:	*Met. lbs.*		*Met. lbs.*
Bavaria	22,500,000	Austria-Hungary	15,500,000
Würtemberg	6,000,000	Belgium	9,000,000
Baden	5,000,000	France	5,000,000
Alsace-Lorraine	6,500,000	Russia	2,500,000
Prussia	3,500,000	Great Britain	*36,000,000
Total for Germany	43,500,000	Total for Europe	†101,500,000

* Equal to 40,000,000 English pounds. † 101,500 gross tons.

The hop product of Germany has fluctuated from year to year during the past decade between a minimum crop of 36,296,000 pounds in 1882 and a maximum crop of 71,565,000 pounds in 1889, the annual average for the ten years being 52,542,100 pounds. The foregoing estimate, therefore, reckons the German crop of 1892 at 3,300,000 pounds less than that of 1891 and 9,042,100 pounds below the average of the past ten years.

Official statistics now show that there has been an increase of 155 acres in the area of land under hop culture in Baden and a decrease of 340 acres in Prussia and 1,921 acres in Würtemberg, while the area of culture in Bavaria and Alsace-Lorraine remains practically unchanged. There has been, therefore, a reduction of hop-growing land in the whole of Germany from 109,825 acres in 1891 to 107,719 acres in 1892.

FRANK H. MASON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Frankfort, September 10, 1892.

RAILWAYS, HIGHWAYS, AND BRIDGES IN SPAIN.

REPORT BY CONSUL BOWEN, OF BARCELONA.

RAILWAYS.

There are now 7,000 kilometers of railway in process of construction in Spain. The greatest number of kilometers built during any one year was 764 in 1860, 837 in 1863, and 766 in 1865.

Almeria, Soria, and Teruel are the only provincial capitals that have not yet been brought into connection with the general railway system of Spain, but nearly two-thirds of the principal towns of the various districts of the forty-nine provinces of Spain are also isolated. A still more remarkable fact is that only one-third of the fifty-two strategic points that could be used to defend Spanish territory are at present provided with railway communication.

The total number of locomotives employed in said general railway system is 1,200, the number of passenger cars is 4,000, and the number of freight cars is 16,000.

HIGHWAYS.

Besides the 18,190 kilometers of highroads that Spain now has, 4,000 kilometers are in process of construction and plans for 1,000 kilometers more have been approved. It is intended to have the general highroad system ultimately consist of 35,942 kilometers.

BRIDGES.

The number of bridges possessed by Spain is as follows: Stone, 1,062; iron, 35; and wood, 72. The number of each of these three classes now in process of construction is 98, 24, and 3, respectively.

HERBERT W. BOWEN,
Consul.

UNITED STATES CONSULATE,
Barcelona, June 3, 1892.

STAVES IN LIEGE.

REPORT BY CONSUL DANFORTH.

It is very difficult to give an approximate estimate of the number and value of staves used in this consular district. The manufacturing of casks, tuns, and barrels is so scattered in small workshops that it is impossible to have a complete or even an approximate knowledge of the amount manufactured. Besides this, I find that a great number of these casks and barrels come here from the province of Antwerp, most of the wood being imported to that seaport. Sweden, Norway, and Russia send all by sea. The larger part from the Netherlands and even a part of Germany's shipments come by way of Antwerp.

The staves most in demand are for beer casks, and are all of oak.

Most of the staves used here come from the Belgian province of Luxembourg, from the provinces of Liege and Namur, and from the French Ardennes.

The following are the sizes of the staves and heads most used:

Description.	Length.	Thickness.	Width.
	Inches.	*Inches.*	*Inches.*
Staves	27¾	$1\frac{4}{10}$	2⅛ to 9
Do	22	$1\frac{4}{10}$	2⅛ to 9
Heads	$17\frac{4}{10}$	1⅛	2⅛ to 9
Do	14⅝	1⅛	2⅛ to 9

The staves of barrels for zinc paint, nails, etc., are made of beech. They run from 12 to 37½ inches in length, one-fifth of an inch to half an inch thick, and uniformly 4 inches in width.

The staves most in demand are 35 inches long, one-third of an inch thick, and 4 inches in width, worth $20 per 1,000 pieces, free at Liege; and 37½ inches long, half an inch thick, and 4 inches wide, worth $21 per 1,000 pieces, free at Liege.

These staves are sawed to a given length and roughly cut with the hatchet at the forest. They must be of very dry wood and without knots. The finishing is done at the cooperages.

Staves for the larger beer casks, called "full tuns," are 26 to 27¾ inches. The smaller, or "half tuns," are 20¾ to 22 inches. The staves of the "heads" are 17 to 17¾ inches long, 3¾ to 6½ inches wide, and $1\frac{1}{10}$ to 1⅛ inches thick.

The most desirable timber for these staves is oak grown in cold countries and on poor soil. The slow growth gives a firm, close fiber.

The trade is local and comparatively unimportant.

American staves are not used, as it is claimed that the wood is too soft and porous for beer casks. Could not American manufacturers convince them to the contrary?

No. 145——6.

The total importation of wood of all kinds into Belgium during 1889 was of the value of 79,043,765 francs, of which 65,000,497 francs' worth remained in the country.

In these sums the United States figure for a total amount of 2,712,698 francs, of which 1,518,749 francs' worth remained in Belgium.

The most important amount is furnished by Sweden and Norway, as Germany, France, and Russia (which import in about equal quantities) do not together reach in value or quantity what comes from the Scandinavian peninsula.

JAMES R. DANFORTH,
Consul.

United States Consulate,
Liege, May 5, 1892.

SAN BLAS COAST AND PEOPLE.

REPORT BY MINISTER ABBOTT, OF BOGOTÁ.

I have the honor to transmit herewith a free translation of so much of the last annual report of the captain of the port of Colon, made to the minister of finance, as relates to the San Blas coast.

The description of the inhabitants, who are uncivilized Indians, is very interesting.

The recommendations as to commerce are of peculiar interest to those of our merchants who desire to continue their trade in those regions, and are also important to the Government, in view of the past complications on account of alleged smuggling on the part of citizens of the United States.

It is extremely difficult to regulate the San Blas trade to the satisfaction of both this Government and the owners of vessels. The former is and always has been disposed to be as reasonable and complacent as possible. The latter have not always appreciated the difficulties of the situation, and those few who wish to carry on their business unrestricted by customs laws have not exhibited any ardent desire to do so.

If any changes are effected by the next Congress they will be duly reported.

JOHN T. ABBOTT,
Minister.

United States Legation,
Bogotá, June 5, 1892.

Gulf of San Blas.

[Inclosure in Minister Abbott's report.—Translation.]

PORTS.

The principal ports are Chucumbali, Cardi, Rio Cidra, Rio de Azucar, Rio Diablo, Playón Grande, Rio de Perro, Playón Chico, Rio Mone, Isla de Paloma, Aguilagandi, Napagandi, Rio Banana, Rio Mosquito, Putugandi, Sasardi, Caledonia, Carreto, Esmachicuna, Armila, Pala, and Cabo Tiburón.

GOVERNMENT.

Each village has its "caçique," but to-day that of Sasardi is considered the chief to whom all the others render obedience. The people are very submissive and respectful to each of their "caçiques."

Every year a congress is held, the place of meeting being changed each year among the different tribes.

When a matter of special consequence is to be considered, it is done at Rio Diablo, that being deemed the most important point.

Each village has its "ina," "tulete," "mila," and "arzoquete," words by which they call the physician or healer, soothsayer, and priest of each tribe.

CUSTOMS.

Their principal domestic feasts are: On the third day after the birth of a son, when his nose is pierced for a ring; when a girl reaches the age of puberty; and, lastly, when she marries, which is the most significant event in the family history.

The girls' hair is allowed to grow from birth until they reach their full development, when it is cut as a sign that they are of a marriageable age.

The Indian boy after marriage becomes the servant of his father-in-law, and must submit in all things to his will as a son until emancipated by having a marriageable daughter, when he sets up his own home and becomes thenceforth the master of his son-in-law.

Two days before a marriage ceremony the women conceal all weapons belonging to the men, in order to avoid any serious consequences from the free use of the spirituous liquor which they call "chicha."

The men are very jealous of their women, and in case of war or other grave danger, above all, if they think that they are to be deprived of their lands, their first step is to kill their wives and children. Happily, this has not as yet come to pass, but their strict ideas might easily carry them to that extreme should an attempt be some day made to take forcible possession of their territory.

They are extremely superstitious, and give great significance to dreams, considering them, like insanity, as the work of evil spirits. When any one dreams he tells his dream to the soothsayer, who interprets it to his liking and pronounces the death penalty, as he also does in cases of insanity.

Recently, in Rio Diablo, an unhappy woman who had lost her reason was condemned by the caçique to be burned, and in a place outside the village a pyre as high as a man was erected of combustible material. The woman was enveloped in a blanket, placed on the pyre, and saturated with kerosene oil. The fire was set in the presence of the tribe and of the family of the victim, who contemplated the sad scene while uttering loud groans.

The women, in the presence of the caçique, carry the cargo to the ships, and are very well treated by the crews. The men, as a rule, are excellent sailors from the age of 8 years.

They permit no foreigner (and for them all are foreigners not born there) to establish dwelling houses or stores in their territory, and to such an extreme do they carry their firmness in this that they will not even allow anyone to sleep in their villages. They wish to exercise absolute dominion, even to the sea which washes their shores. They are skillful in trade, are honest and thrifty.

LANGUAGE.

They understand English and make use of it in their relations with North Americans, who, by frequent intercourse with them, have accustomed them to their language. They moreover have their own dialect, in which all the natives of the country express themselves.

They have but little regard for Colombians, whom they call Spaniards, from the fact that they use the Castilian tongue. There are not above a dozen who understand the Spanish language. Traffic with Puerto Bello is constant, and on a less scale with Colon.

RELIGION.

They have the idea of divinity, and represent God by figures of wood. When they die they believe that they go directly to repose in the bosom of the eternal. Each family makes and maintains its own burial place, which consists of a very neat palm hut. There they dig the grave and erect a stake in each end of it, from which they hang a hammock to receive the body, with which they place a diminutive boat and the arrows, jewels, etc., of the dead, in order that God may see the implements with which they maintain themselves here on earth. These graves are covered with boards, with earth on top heaped up to form an arch. The grave is never disturbed, and when the burial place is full a new one is made.

POPULATION.

By the official census of 1870 the territory of San Blas had 9,469 inhabitants, but the population is supposed to approximate 20,000.

HEALTH.

Excepting the endemic diseases which prevail among us, the only epidemic of which we have knowledge has been the smallpox. This has occurred at relatively long intervals, and it has not as yet been possible to combat it by the introduction of vaccine.

AGRICULTURE.

Forty years ago the cocoanut palm grew almost spontaneously and belonged to the community, the fruit selling at from $4 to $5 per thousand. To-day this price has increased to $25, and at times reached $30, since the cocoanuts of San Blas are more esteemed in the United States than those of any other origin, for which reason they sell for some $5 per thousand more than others.

At present the Indians cultivate this valuable tree after it is 8 years old, and the property is now individual. They also sow cacao and coffee; but the first, either through their ignorance of cultivation or because of a pest which has of late attacked the plants, has not produced good results, and they sow so little of the latter that it is hardly sufficient for the consumption, notwithstanding the opinion of those versed in such matters is that the lands are adapted for the cultivation of both.

IMPORTATION.

The annual imports to this coast are estimated at about $200,000 in silver, of 835 milesimos.

EXPORTATIONS.

The exports are estimated at about $250,000 in the same money, and consist of 7,000,000 cocoanuts, 4,000 kilograms of tortoise shell, and 5,000,000 kilograms of vegetable ivory, products almost all of which go directly to foreign countries in the boats engaged in that commerce.

PILOTS.

Every boat going to trade at the gulf must take a pilot at Puerto Bello, who is generally paid $2.50, and sometimes $3, per day during the trip. In my opinion, these pilots should be appointed by the Government, in order that they may be invested with more authority.

RECOMMENDATIONS.

From all these data, which I have collected with great care, to the end that all, and especially the Government, may be impressed with the importance of the Gulf of San Blas, it is evident that something ought to be done for the benefit of these Indians and toward shedding the light of civilization where until now there have existed only the dark shadows of ignorance.

As a beginning, it seems to me that nothing better can be done than to send missionaries to these wild regions. This would be, at the least, a duty to humanity, even if it shall not prove a positive advantage to the country.

This territory, which is a part of the department of Panama, is entirely under the control of the custom-house of Cartagena in respect of its commerce, according to decree 986 of October 26 of this year reforming decree 867 of Septemher 25 of the same year. This decree, in order to be effective, makes it necessary for the Government to appoint a special officer, with his residence at Puerto Bello, to guard against the smuggling of merchandise into the Gulf of San Blas, which is generally carried on in small boats. This officer might well be a corporal of the custom-house force, or the matter might be entrusted to the mayor of Puerto Bello, an official who has no salary whatever, but to whom a fair remuneration might be paid as a stimulus to the faithful performance of his duty. At present, without this position for a corporal and with the mayor without salary, how can any real interest be taken in preventing smuggling when that is the chief industry of the town and in leaving the occupations which give its people subsistence to engage in a business which would bring in nothing but curses?

Now, then, although the decree just cited provides that the gunboat *La Popa* shall be always vigilant to prevent trade with the said coast, except under the legal restrictions, this ought not to be a dead letter, but should be carried into effect by the extension of the boat's trips, both in coming and going, to Puerto Bello and this port.

On touching here the captain or commandant should place himself under the orders of this office, in order to receive its instructions, since no one better than its chief can be thoroughly conversant with what is passing in the neighboring coasts.

I call attention to this because, in the various trips which the said gunboat has made to this port, its captain has not even advised his arrival, which may be due to the fact that his superior has not so instructed him or that no legal requirement therefor exists.

If the decree authorized by your office, regulating the trade with the said gulf, does not, after due trial, yield the beneficial results contemplated (for it may be that trade in merchandise carried from Cartagena to the gulf may be nothing), in my opinion, in order that the Government and commerce may obtain any advantage, it should be so reformed as to prohibit absolutely trade with the said gulf, so as to force the Indians to go to the ports of the department for the supplies they need and to bring for sale all their products to this port for exportation. This would render it practicable to ascertain the real exports of the department and would bring the Indians in constant relations with Colombians.

If this be not deemed expedient, then it should be provided that the only ports through which this trade may be carried on shall be Cartagena and Colon, and that the merchandise which may go from the latter port shall be subject to an increase of 25 per cent ad valorem over the current prices in this market, and that the formalites for this trade shall be those now in force by virtue of the said decree No. 867.

After mature examination of this matter, I have come to the conclusion that, if the means now in force give a poor result, one of these two methods which I have proposed should be selected for the accomplishment of the desired end.

FERTILIZERS IN THE BAHAMAS.

REPORT BY CONSUL McLAIN, OF NASSAU.

In compliance with directions contained in the Department's circular of June 2, 1892, relative to trade in fertilizers in my district, I would report as follows:

There is no importation of fertilizers into this colony from Europe. A considerable quantity of guano, or cave earth—a rich bat deposit found in caves on the out islands—exists in this colony. Prior to 1885 from $12,000 to $15,000 worth of this deposit was exported annually, most of it going to the United States to be mixed with other fertilizers. Since 1885 the policy of the colonial government being opposed to the removal of any fertilizers from the islands, exportations of this guano have been prohibited by law, with a view to encourage its use by local agriculturists. It is not, however, much used, being, perhaps, too rich in its natural state.

Within the last three or four years, however, a demand has arisen for fertilizers in the cultivation of pineapples, and foreign fertilizers have been introduced with excellent results, the fruit being larger and of better flavor, and old, worn fields developing new life and vigor.

These fertilizers, I am happy to say, come entirely from the United States, and the trade is rapidly increasing. In 1891 fertilizers to the amount of 2,175 barrels, worth about $12,000, were imported from the United States and used during the year. There will probably be a decided increase in the amount imported in 1892.

I do not anticipate that our manufacturers of fertilizers will meet with any European competition here. We have the trade already, conditions are all in our favor, and we are going to keep it, and increase it.

THOS. J. McLAIN,
Consul.

UNITED STATES CONSULATE,
Nassau, June 24, 1892.

PERUVIAN RAMIE.

REPORT BY SECRETARY OF LEGATION NEILL, OF LIMA.

Permit me to transmit to the Department a sample of ramie* grown on the estate of Señor Pinillos—La Legna, near Lima—and worked through a machine arranged here without any preparation whatever.

There are at present some 40 acres of ramie planted at the hacienda of La Legna, but this can be doubled in a very short time. I have been able to obtain the following data from an English gentleman of this city, Mr. Norman Evans, who is interested in the growing and manufacture of this valuable fiber plant.

The plant gives four or five crops per annum, and they calculate to obtain 10 tons of clear fiber per acre per annum. From £28 to £30 per ton has been offered for it.

Mr. P. D. G. Clark, curator of the Royal Botanic Gardens, Ceylon, who was lately here as agricultural expert of the Peruvian Corporation of London, says in his report to the corporation:

> I have also been shown some specimens of rhea, or China grass (*Bohmeria nivea*), which was the finest sample of this valuable fiber plant that I had ever seen. It measured 9¼ feet long, and had also the appearance of having been cut too soon for commercial purposes.

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*Sample sent to the Agricultural Department.

These samples were shown to Mr. Clark by Señor Pinillos.

The machine, having been made here by unskilled hands, is necessarily imperfect, and if these gentlemen could obtain proper machinery very much better results could be obtained.

RICHARD R. NEILL,
Secretary of Legation.

UNITED STATES LEGATION,
Lima, May 28, 1892.

TRADE AND COMMERCE OF PALERMO.

REPORT BY CONSUL PUGH.

Since my last general report on the trade and commerce of Palermo there has been no material alteration or especial feature.

IMPORTS.

There has been an increase in imports of $1,003,836.23, of which the sum of $93,629.44 was the increase on the part of the United States; but, with the exception of England, the countries of the triple alliance appear to have profited most in the increase. While the imports have increased, the exports have decreased $1,202,636.55, indicating a rather unhealthy business condition.

The principal articles exported from Palermo during the last year amounted in value to $5,180,408.05, a total decrease below that of the preceding year of $1,202,636.55, while the decrease to the United States was $1,250,197.30, a sum even larger than the total decrease. This latter was due largely to the immense damage to both trees and fruit by severe frosts, snow, and hailstorms during the winter of 1890–'91.

The principal articles imported into Palermo during the same period amounted in value to $5,023,440.42, upon which duty was collected amounting to $1,021,139.92. The largest item of importation from the United States was petroleum, and, while Italy does not produce a single gallon of petroleum, she imposes upon this article an import duty of about 200 per cent. On an importation of petroleum to the value of $183,251.77 she collected a duty of $343,208.40.

In a former report mention was made of what appears to be a discrimination against the United States in the enormous import duty levied upon petroleum, coming principally from the United States, and in the export duty on brimstone and sumac, of the former of which the United States takes about double that of any other country and of the latter a very large proportion.

Table showing the value of the principal articles imported into Palermo during the year 1891.

Articles.	From—						Total.	Duty collected.
	Austria.	England.	France.	Germany.	United States.	Other countries.		
Acid and candles, stearic	$12,016.00	$15,483.00	$2,018.00	$5,120.00		$3,160.00	$37,797.00	$3,287.60
Acid, sulphuric			1,994.20				1,994.20	129.60
Barley and Indian corn	29,400.00					27,800.00	57,200.00	5,300.00
Beer	1,576.80	38.60	200.00	7,232.80		23.60	9,071.80	447.23
Brass, bronze, and nickel, and manufactures thereof	12,962.20	36,201.80	11,633.40	18,848.60		9,200.00	88,846.00	7,999.94
Cattle						55,160.60	55,160.60	4,449.00
Cement		7,747.95	17,503.62	2,630.80			27,882.37	4,730.20
Cheese and eggs	900.00			2,047.80		45,028.20	47,976.00	2,894.40
Coal		567,199.00					567,199.00	
Coffee	720.20	110,990.20	2,425.60	8,235.40	$55.60	55.20	122,472.20	74,945.80
Colors and coloring matter	96.80	2,611.40	609.00	952.40		1,119.20	5,388.80	473.00
Corn						310,000.00	310,000.00	76,652.97
Cotton	104.00	13,482.20	134.00	839.00		31.00	14,590.20	2,562.80
Cotton tissue	16,937.60	429,004.20	8,498.40	57,137.80	2,826.20	26,295.40	540,699.60	140,748.00
Decorated earthenware	7,492.60	4,494.80	5,042.60	9,003.40			26,033.40	4,816.20
Essence of orange	164.00		52.00	1,664.20			1,880.20	282.80
Fish, dry and salt		6,302.40			868.40	7,261.40	14,432.20	3,945.12
Furniture	19,499.00	7,436.80	5,872.80	4,882.20	1,530.80	55.00	39,276.60	2,723.80
Glass and articles thereof	13,725.40	3,145.80	13,539.40	19,838.80		23,402.80	73,672.20	15,664.58
Guns, revolvers, and parts thereof			4,816.20	9,000.00	7,000.00	13,000.00	33,816.20	5,212.00
Hats, felt, for men	360.00	9,124.00	1,000.00	500.00			20,984.00	1,380.00
Hemp, linen, jute, and other fibrous vegetables, excluding cotton		4,360.20	9,653.60	2,156.40			16,170.20	
Hempen rope		6,942.60	1,330.80	1,365.20	1,022.40	476.60	11,137.60	1,280.80
Hempen tissue	786.00	13,499.20	1,278.60	4,560.00		2,338.60	22,462.40	4,277.80
Hides and skins:								
Raw	1,085.14	15,717.00	7,781.02	3,348.03	7,564.04	13,237.00	48,732.23	
Manufactured		15,535.00	20,000,00	67,413.20			102,948.20	12,854.76
India rubber and articles thereof		1,475.00	1,000.00	4,040.00		12,080.00	18,595.00	1,445.00
Iron	7,360.00	129,066.60	31,073.80	25,625.40	1,337.00	29,661.60	224,124.40	74,845.00
Cast	6,200.00	34,808.40	1,125.60	3,640.00	7,000.00	851.80	53,625.80	11,066.00

Ivory and mother-of-pearl	30,840.00	19,280.00	16,000.00	13,800.00			79,940.00	4,036.20
Lard		38,240.00			21,715.40	44,174.80	104,130.20	5,774.00
Medicines	201.40	142.40	461.00	464.40		295.80	1,565.00	273.80
Mercery	20,080.00	6,160.10	20,040.15	28,800.02	2,040.00		77,120.27	10,437.80
Musical instruments	5,080.00	240.00	2,680.00	12,650.00			20,650.00	3,132.00
Oats	13,600.00					19,600.00	33,200.00	7,617.15
Oils, mineral (petroleum)	4,228.45	28,146.40	364.12	269.20	143,915.60	6,328.00	183,251.77	343,208.40
Paper of any kind		749.60	6,405.40	6,854.40	8.40	2,460.80	16,478.60	4,791.23
Perfumery	105.60	448.80	1,935.60	628.80			3,118.80	519.80
Physical, optical, and chemical instruments	5,400.00	10,155.40	2,410.00	9,600.00	3,170.20	1,600.00	32,335.60	1,810.60
Plumes, ornamental	30,840.00	19,280.00	16,000.00	13,800.00			79,940.00	4,036.26
Potassa and soda, caustic		14,808.60		623.63		3,168.24	18,600.47	347.05
Poultry						15,368.80	15,368.80	568.74
Seeds:								
Oleaginous						2,180.00	2,180.00	220.00
Not oleaginous	18,000.00					2,100.00	20,100.00	
Sewing machines and parts thereof	1,211.40	80,314.20	4,419.14	6,683.22		2,960.00	95,587.96	12,168.05
Silk tissue	10,367.20	21,806.20	171,648.80	122,971.00	481.00	6,008.80	313,283.00	33,895.80
Soap, common and perfumed	1,179.80	1,851.40	850.20	683.00	17.60	63.40	4,645.40	621.00
Spirits and liquors	2,411.65	388.34	6,105.40	205.32	4.20	497.10	9,612.01	2,421.80
Starch		4,073.80				5,000.00	9,073.80	1,617.10
Sugar	19.80	620.20			52.60	11.60	704.20	1,625.80
Sweets	10.00	1,608.80	70.00	394.00		788.40	2,871.20	1,331.98
Timber	176,523.20	3,561.00	2,934.40	876.00	45,881.40		229,776.00	469.00
Varnish of any kind	8.00	3,608.00	739.20	38.20	4.80	427.20	4,825.40	438.74
Water, mineral and gaseous	841.80	265.40	2,321.40	485.20		235.20	4,149.00	133.40
Wine, common, in casks and bottles	33.60	55.40	1,563.40	149.00		83.60	1,885.00	1,361.80
Wool	5,883.80	23,313.20	2,809.20	29,558.20	362.80		51,927.20	10,659.20
Woolen tissue	54,162.80	165,177.20	140,205.20	173,998.00	985.40	4,148.80	538,677.40	103,209.40
Miscellaneous						484,274.94	484,274.94	
Total	512,404.24	1,878,960.59	548,585.25	653,613.02	247,843.84	1,182,033.48	5,023,440.42	1,021,139.92
Total in 1890	402,435.20	1,722,824.00	579,048.60	494,999.80	154,214.40	666,082.20	4,019,604.20	1,008,652.20
Increase	109,969.04	156,136.59		158,613.22	93,629.44	515,951.28	1,003,836.22	12,487.72
Decrease			30,463.35					

In looking over the items coming from the United States that have made material gains in this market during the past year, it will be observed that timber exceeds that of the previous year by $45,881.40; lard, $11,815.40; raw hides and skins, $7,564.04; and iron, $7,000.

Of the above total importations to this port only $247,843.84, less than 5 per cent, came from the United States direct, although it is known that large quantities of American products, such as corn, wheat, cotton, lard, and sewing machines, reach this market through English and other houses, and are therefore not credited to our country. In the case of sewing machines, there appears no credit to the United States, although nearly every one in this market is the familiar Singer make. This is due largely to the fact that American producers and dealers practically make no effort to gain a better hold upon this market. It is true that this office is in constant receipt of requests from merchants and manufacturers from all parts of the United States for names and addresses of dealers in given articles, "in order that price lists, circulars, etc., may be sent." The requests are complied with, and in many instances such circulars and price lists are sent, always in English; and, as not one merchant here in a hundred is able to read a word of English, the circulars go into the waste basket without a moment's thought and never lead to a sale.

As I mentioned in a former report, the superiority of American manufactures is acknowledged, and it is believed, with a little push, sales of American goods would make astonishing strides in supplanting those of other countries; at least we should receive a fair proportion of the trade. At present German and English goods control this market, because sellers send their representatives here to learn the wants of buyers and conditions of trade and cater to those wants and conditions. I beg to suggest, if the expense appears too great to justify any single manufacturer or dealer in sending his representative, that a number of dealers in different articles club together and send a joint representative. If American merchants and manufacturers wish to extend their sales in this market, some such course is imperative, and the fact applies as well to other parts of Italy as to Palermo. Sales by price lists and circulars before the goods have been thoroughly introduced and the people made to understand their merit are impossible.

The question of coal is an important one that has hitherto received little or no attention from American coal operators. The general offices of one of the largest steamship companies of the world, owning and operating more than one hundred steamers of all sizes, are located at this place, besides the company's docks, shops, etc., and other manufactories. The immense tonnage of coal required to supply the demands of this company (the Navigazione Generale Italiana) will be readily appreciated. Italy having no coal, all must come from abroad, and the supply for this company's lines to the Black Sea, the Adriatic, to Egypt, to Australia, to India, to South Africa, to South America, and the local lines in the Mediterranean being purchased from this place, will demonstrate its importance as a coal market. But in this, as in other branches, English operators come here every year, make their annual contracts, supplying this vast tonnage, and the profits go to English operators.

EXPORTS.

As brimstone, next to green fruits, is the largest article of exportation, I present herewith two tables, one showing the quantity exported during the last five years from Palermo, Catania, Girgenti, and Licata to the various countries, and the other showing the quantity exported to the United States during the same period, with the ports of destination.

Table showing the quantity of brimstone exported from Palermo, Catania, Girgenti, and Licata to the various parts of the world during the last five years.

Countries.	1887.	1888.	1889.	1890.	1891.
	Cantars.	*Cantars.*	*Cantars.*	*Cantars.*	*Cantars.*
Australia	7,800	11,505	....	18,209	4,114
Austria	87,132	116,246	116,799	112,284	133,523
Belgium	69,135	90,361	100,783	95,548	64,769
Denmark	2,624	6,036	5,756	15,207	827
England and India	390,092	463,244	509,640	335,300	315,515
France and colonies	730,888	677,086	875,428	932,871	728,476
Germany	126,109	161,225	200,219	186,989	134,189
Greece	238,813	75,521	132,057	183,391	164,847
Holland	22,703	36,309	31,511	19,317	25,258
Italy	636,966	619,620	565,794	524,591	551,455
Portugal	215,632	206,067	218,384	239,758	155,212
Russia	174,739	286,557	229,820	200,517	164,409
Spain	76,342	44,629	85,614	52,857	38,824
South America	9,220	1,230	298	135	2,188
Sweden and Norway	15,196	39,046	50,691	56,342	31,770
Turkey	81,091	18,942	28,967	112,572	27,038
United States	1,162,445	1,667,451	1,417,105	1,388,893	1,267,122
Total	4,046,927	4,521,075	4,568,866	4,474,781	3,809,536

Table showing the quantity of brimstone exported from Palermo, Catania, Girgenti, and Licata to the United States during the last five years.

Whither exported.	1887.	1888.	1889.	1890.	1891.
	Cantars.	*Cantars.*	*Cantars.*	*Cantars.*	*Cantars.*
Baltimore	133,969	225,290	199,110	206,307	156,845
Boston	42,900	81,900	64,350	32,500	26,650
Breakwater	6,500	....	....	....	8,190
Charleston	186,212	292,452	161,185	358,331	278,935
Gibraltar	7,797	6,240	....	....	....
Mobile	....	....	....	9,620	....
New Orleans	2,600	3,250	2,600	10,400	6,500
New York	597,727	789,180	727,205	483,609	637,824
Pensacola	....	....	....	18,070	....
Philadelphia	146,435	153,309	186,345	150,720	89,128
Port Royal	13,000	7,800	....	7,800	9,100
Providence	8,200	16,250	7,670	8,450	....
San Francisco	3,845	....	....	....	....
Savannah	....	46,085	42,120	76,960	20,150
Wilmington	13,260	30,615	26,520	17,026	33,800
Woodhole	....	15,080	....	....	....
Zarate	....	....	....	9,100	....
Total	1,162,445	1,667,451	1,417,105	1,388,893	1,267,122

Table showing the value of the principal articles exported from Palermo during the year 1891.

Articles.	To—						Total.	Duty collected.
	Austria.	England.	France.	Germany.	United States.	Other countries.		
Acid vinegar					$28.00		$28.00	
Alcoholic perfumery					1,950.80		1,950.80	
Artistical articles for collection, pictures of living authors		$472.80	$600.00	$400.00			1,472.80	$14.73
Books printed in Italian language			1,040.00			$240.00	1,280.00	
Brass and bronze in works		175.20			31.40	208.80	415.40	
Brimstone	$3,040.00	512.00	3,460.00		230.00		7,242.00	942.98
Butter						208.00	208.00	
Cement		260.00	63.80				323.80	
Chemical products not named		4,842.00					4,842.00	
Condiments (cinnamon, etc.)		1,720.00	2,064.00		1,396.00	11,868.00	17,048.00	
Cork, uncut			109.40			1,860.00	1,969.40	
Cotton goods						958.80	958.80	
Dried fruits, shelled and not shelled, and figs	48,361.00	64,125.00	29,899.00	9,201.00	4,455.60	12,109.80	168,151.40	
Essence of orange	930.00	75,962.40	12,021.80		9,827.00		98,741.20	
Fish, salt	20,644.00	438.00			1,370.00	700.00	23,152.00	
Flax, prepared, in bags	360.00		3,240.00		2,258.40	2,220.00	8,078.40	
Fresh fruits not named		76.80	96.00			266.00	438.80	
Fresh vegetables not named		140.40			1,112.60		1,253.00	
Glue			166.40				166.40	
Hides and skins	14,943.20	10,407.60	49,806.80				75,157.60	
Horse beans					380.00	102,385.60	102,765.60	
Lemon juice		22,499.00	10,913.20	2,122.00	630.00	5,048.80	41,213.00	
Lemons and oranges	950.40	239,788.80	2,534.40	2,531.60	1,723,050.00	42,336.60	2,011,191.80	
Macaroni	60.00			321.40	2,557.80		2,939.20	
Manna	15,610.00	30,100.00	60,250.00	770.00	2,490.00	1,190.00	110,410.00	
Marble		62.20	26.00	21.40		615.20	724.80	
Meat, salt or smoked			1,296.00				1,296.00	
Olive oil		12,624.00	118,544.00	1,536.00	111,552.00	32,280.00	276,536.00	
Orange peel	64.00	2,788.00	1,516.00	180.00	540.00	2,048.00	7,136.00	
Paper, white and colored			300.00		3,210.60		3,510.60	

Rags	...	...	...	...	918.40	...	918.40	512.72
Raw bones and horns	...	...	42,888.60	...	...	...	42,888.60	...
Raw woolen hair	...	39,100.00	...	...	...	...	39,100.00	...
Seeds:								
Not oleaginous	...	...	...	...	6,416.00	...	6,416.00	88.13
Oleaginous	...	7,577.60	3,696.00	...	38.40	...	11,312.00	320.00
Shoes of any kind	...	...	...	...	...	271.40	271.40	...
Stearic, wax, and like matches	...	...	...	...	...	1,632.00	1,632.00	...
Sumac	17,144.40	572,116.80	376,658.80	83,984.80	186,191.20	76,090.40	1,312,186.40	27,395.03
Sweets	...	94.50	18.90	...	...	98.35	211.75	...
Timber	...	...	407.00	...	982.20	...	1,389.20	...
Tobacco	...	...	...	...	222.30	81.60	303.90	...
Vegetables, preserved	...	200.00	740.00	...	5,444.00	340.00	6,720.00	...
Toys	286.00	...	371.00	...	...	...	657.00	...
Wax (worked), yellow	...	512.00	...	...	...	...	512.00	...
Wine	1,900.00	3,435.20	48,314.40	11,574.80	47,514.40	1,681.60	114,420.40	...
Wine lees	...	437,918.00	16,302.00	...	110,656.00	96,538.00	661,414.00	11,192.87
Wool, natural and washed	...	8,354.80	929.80	...	...	169.60	9,454.20	...
Total	124,293.00	1,536,303.10	788,273.30	112,643.00	2,225,449.10	393,446.55	5,180,408.05	40,466.46
Total in 1890	146,562.80	1,616,708.20	729,859.00	145,346.00	3,475,646.40	268,922.20	6,383,044.60	43,290.60
Increase	...	...	58,414.30	...	...	124,524.35	...	...
Decrease	22,269.80	80,405.10	...	32,703.00	1,250,197.30	...	1,202,636.55	2,824.14

In the shipment of green fruits there has been a marked decrease, as above mentioned, that will appear fully from the table prepared of the number of boxes of oranges and lemons shipped from this place during the year ended September 30, 1891.

Table showing the number of boxes of oranges and lemons exported from the port of Palermo to the United States during the year ended September 30, 1891.

Months.	To—					
	Baltimore.		Boston.		New Orleans.	
	Oranges.	Lemons.	Oranges.	Lemons.	Oranges.	Lemons.
October	....	....	....	332	....	....
November	....	....	18,356	17,354	890	10,489
December	2,149	857	23,544	14,383	12,722	33,641
January	343	1,004	17,444	7,160	13,967	18,650
February	403	359	19,896	20,844	5,461	44,467
March	....	....	56,654	30,697	2,068	30,305
April	3,080	1,227	12,884	40,251	499	28,615
May	....	1,769	9,649	14,595	....	30,435
June	....	....	7,377	28,328	....	23,762
Total	5,975	5,216	165,804	173,944	35,567	220,364
Preceding year	3,179	1,519	132,661	214,966	25,172	252,083

Months.	To—				Total.	
	New York.		Philadelphia.			
	Oranges.	Lemons.	Oranges.	Lemons.	Oranges.	Lemons.
October	64	33,441	....	....	64	33,773
November	8,287	40,542	3,847	6,351	31,340	74,736
December	77,077	68,286	7,879	12,002	123,371	129,169
January	34,240	34,495	11,581	4,938	77,575	66,247
February	33,117	58,423	6,618	8,859	65,495	132,952
March	56,341	69,400	41,162	17,439	156,225	147,841
April	40,770	118,833	10,753	11,051	67,986	199,977
May	26,055	127,273	....	....	35,704	174,072
June	2,482	135,975	1,450	23,523	11,309	211,588
July	....	85,937	....	....	....	85,937
August	....	18,711	....	....	....	18,711
September	....	17,096	....	....	....	17,096
Total	278,433	808,412	83,290	84,163	569,069	1,292,099
Preceding year	232,131	899,631	67,576	150,317	460,719	1,518,516

In a former report attention was called to the large number of boxes required in the shipment of fruit and the impetus given to the purchase of American shooks by the law admitting boxes so manufactured to free entry. Heretofore the importation of American shooks and their employment in the manufacture of boxes has been largely confined to the sides, tops, and bottoms, using a tough wood obtained from Trieste for ends and the middle partition; but, as the law has been construed to mean that boxes so manufactured should pay duty on the entire box as of foreign origin, it will be necessary, in order to hold this trade, for American dealers in this article to supply a wood for such ends and middles that will hold nails driven into it as tightly and firmly as that now obtained from northern Italy and Austria. There have been no importations of shooks from the United States since the above-mentioned ruling; therefore, the attention of American dealers is called to the necessity of supplying a material suitable for such ends and middles in order to hold a trade that amounts annually to $1,500,000.

HORACE C. PUGH,
Consul.

UNITED STATES CONSULATE,
Palermo, June 14, 1892.

AUSTRIAN HOPS.

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

HOP DISTRICTS.

The chief centers of the hop-growing districts in Austria are Saatz, Auscha, and Dauba. These comprise about 11,500 hectares* under cultivation of hops, with an average annual yield of 120,000 to 130,000 metric centners.†

The hops of Saatz are claimed to be the best of the world. They are raised on about 7,500 to 8,000 hectares near Saatz. A good middling crop will yield about 50,000 to 60,000 metric centners, at an average expense of 60 to 70 florins per metric centner. The "Auschaer Rothhopfen" (Auscha red hops) are raised on about 2,000 hectares in the district of Rothlande, comprising the hop-growing countries about Auscha, Leitmeritz, Raudnitz, and Wegstadt. The produce, known under the name of "Auscha red hops," is well liked, and with a good crop the cost of producing 1 metric centner will not exceed 60 to 64 florins. The "Grünlande" of Dauba comprises about 1,485 hectares, producing "Grünhopfen" (green hops), located in the following districts: Dauba, 650 hectares; Wegstadt, 155 hectares; Melnik, 214 hectares; Leipa, about 85 hectares. The average crop is about 18,000 to 20,000 metric centners, and the prime cost for a good crop of green varies from 48 to 52 florins per metric centner.

Besides the above-mentioned hop districts, which are all situated in the Kingdom of Bohemia, some hops of a lower grade are raised in the crown lands of Upper Austria, Moravia, Galicia, Styria, Carinthia, and the Kingdom of Hungary.

HOP ACREAGE AND YIELD.

The acreage devoted to hops in 1891 could not be ascertained; however, it is presumed that, in spite of the endeavors of some parties to limit or even to lessen the acreage devoted to hops, in order to realize high prices for that product, it may be taken for granted that the acreage in 1891, as compared with 1890 and that of the years preceding, has been on the increase, especially as some of the vineyards destroyed by the phylloxera, etc., have been devoted to the culture of hops. The acreage of 1890 has been stated at 14,692½ hectares.

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*1 hectare = 2.471 acres.

†1 metric centner = 220½ pounds.

Table showing the acreage, yield, and consumption of hops in the different crown lands of Austria-Hungary, the number of breweries, and the quantity of beer produced in total and per head of the population during the last five years.

Crown lands.	Hops.			Beer.		
				Number of breweries.	Production.	
	Acreage.	Yield.	Consumption.		Total.	Per head of population.
1891.	*Hectares.*	*Met. cent.*	*Met. cent.*		*Hectoliters.**	*Liters.*†
Lower Austria	....	....	10,227	74	2,691,537	90.8
Upper Austria	....	4,600	3,825	224	1,006,729	124
Salzburg	....	....	1,253	58	329,794	196
Bohemia	....	59,000	24,226	748	6,375,446	112.5
Moravia	....	1,025	3,972	154	1,241,392	54
Galicia	....	1,890	3,025	161	876,294	13.8
Styria	....	2,600	2,618	65	747,944	61
Silesia	....	90	1,215	41	347,108	61.2
Tyrol and Vorarlberg	....	40	960	138	298,448	34
Carinthia	....	140	535	81	152,770	46
Bukowina	....	100	208	8	67,548	10.4
Carniola	....	25	215	9	73,702	12.7
Trieste	....	....	193	2	59,440	34
Bosnia and Herzegovina	....	....	75	9	22,984	1.4
Coast lands	....	....	32	1	21,580	2
Hungary	....	1,400	2,175	98	766,989	4.2
Total	....	70,870	54,858	1,871	15,079,705	....
1890.						
Lower Austria	....	....	10,115	74	2,662,108	90.9
Upper Austria	676	4,500	3,750	224	986,938	126
Salzburg	....	....	1,120	58	329,442	198
Bohemia	10,270	57,500	23,230	766	6,112,862	120
Moravia	291	1,100	3,890	157	1,185,718	55
Galicia	1,817	2,000	3,033	169	866,469	14.5
Styria	1,606	1,575	2,545	67	696,839	57.5
Silesia	....	50	1,040	42	346,864	61.2
Tyrol and Vorarlberg	....	25	985	142	302,940	33
Carinthia	10.5	150	24,319	85	162,138	47
Bukowina	....	75	213	8	60,740	10.5
Carniola	....	25	205	9	58,534	12.5
Trieste	....	....	170	2	43,800	33
Bosnia and Herzegovina	....	....	72	8	18,934	1.2
Coast lands	....	....	5	2	1,512	0.3
Hungary	....	1,000	1,640	100	546,569	3.3
Total	14,690.5	68,000	52,437	1,913	14,382,407	....
1889.‡						
Lower Austria	....	....	9,700	76	2,641,911	113
Upper Austria	....	3,000	3,450	228	873,382	127
Salzburg	....	....	1,075	60	319,973	185
Bohemia	....	55,000	43,600	772	5,944,869	99
Moravia	....	1,500	3,775	161	1,170,051	50

* 26.417 gallons.

† 2.113 pints.

‡ The acreage in 1889 was 14,422 hectares, of which 3,546 hectares were fields and 10,876 hectares gardens.

Table showing the acreage, yield, and consumption of hops, etc.—Continued.

Crown lands.	Hops.			Beer.		
				Number of breweries.	Production.	
	Acreage.	Yield.	Consumption.		Total.	Per head of population.
1889—Continued.	*Hectares.*	*Met. cent.*	*Met. cent.*		*Hectoliters.**	*Liters.*†
Galicia		8,000	3,100	174	768,342	14
Styria		6,500	2,350	68	591,302	52
Silesia		60	1,100	44	315,479	55.5
Tyrol and Vorarlberg		40	1,125	145	275,009	30
Carinthia		200	850	89	149,210	41
Bukowina		125	275	8	62,534	11
Carniola		40	175	8	49,193	10
Trieste			350	2	47,800	50
Bosnia and Herzegovina			75	8	14,996	1
Coast lands		60	25	2	404	0.1
Hungary		1,500	2,400	107	503,976	2.5
Total		76,025	51,400	1,952	13,728,431	
1888.						
Lower Austria			9,310	78	2,537,810	117
Upper Austria		3,600	3,500	233	906,526	116
Salzburg			1,000	59	302,737	170
Bohemia		50,000	21,000	783	5,467,340	98.5
Moravia		2,500	3,600	166	1,066,528	50
Galicia		5,250	3,000	169	728,368	12
Styria		6,750	2,500	67	637,116	55.5
Silesia		50	1,150	44	309,218	53
Tyrol and Vorarlberg		25	1,150	145	267,385	28
Carinthia		300	800	92	142,513	41
Bukowina		100	250	7	60,702	9
Carniola		25	152	8	43,185	9.5
Trieste			175	2	46,300	49.5
Bosnia and Herzegovina			75	7	16,040	1.3
Coast lands		50	38	2	889	0.3
Hungary		2,000	2,500	109	651,319	4.5
Total		70,200	50,000	1,971	13,184,026	
1887.						
Lower Austria			9,507	80	2,716,692	121
Upper Austria		4,500	3,500	231	912,912	116
Salzburg			1,000	57	297,401	170
Bohemia		45,000	21,045	790	5,504,622	99
Moravia		1,750	3,650	168	1,106,552	51
Galicia		9,000	2,500	169	668,941	10
Styria		6,000	2,525	68	654,509	56
Silesia		25	1,098	46	292,112	50
Tyrol and Vorarlberg		50	1,025	144	258,482	27
Carinthia		250	800	94	140,590	41
Bukowina		50	225	7	56,018	8
Carniola		100	190	7	54,950	12
Trieste			81	2	50,400	50
Bosnia and Herzegovina			32	7	11,312	1
Coast lands		25	5	3	1,333	0.4
Hungary		1,750	2,700	106	691,284	4.7
Total		63,500	49,838	1,979	13,418,110	

*26.417 gallons.

†2.113 pints.

Table showing the production and consumption of hops, consumption of malt, number of breweries, and production of beer in Austria-Hungary during the years 1887-'91.

Year.	Hops.		Consumption of malt.	Beer.	
	Yield.	Consumption.		Breweries.	Production.
	Met. cent.	*Met. cent.*	*Met. cent.*		*Hectoliters.*
1887	63,500	49,838	3,285,736	1,979	13,418,110
1888	70,200	50,000	3,050,529	1,971	13,184,026
1889	76,025	51,400	3,549,564	1,952	13,728,431
1890	68,000	52,437	3,438,452	1,913	14,382,407
1891	70,870	54,858	3,050,072	1,871	15,079,705

The area cultivated with hops in Austria, according to the annual report of the minister of agriculture for Austria, was 14,690½ hectares (of which 3,744 hectares were fields and 10,946½ hectares gardens) in 1890 and 14,422 hectares in 1889 (of which 3,546 hectares were fields and 10,876 hectares gardens).

As to the proportion of the 1891 crop in the hands of growers and dealers on January 1, 1892, it being assumed that the balance was in brewers' hands or had been consumed, it will be seen by the following statement that there was no stock on hand:

	Met. cent.
Yield of the hop crop of 1891	70,870
Import in 1891 (according to official statistics)	5,326
Total	76,196
Consumption in 1891	54,858
Export in 1891	32,886
Total	87,744

There was, therefore, an excess of 11,548 metric centners in consumption and export as compared with the crop and import of 1891. It may be presumed that that excess was covered by the stocks of former crops, especially the large stock of compressed hops of 1889, which, according to the statement of the nineteenth international grain and seed market (1891), had been entirely exhausted by August, 1891. It therefore appears that the stock in hands of growers and dealers had been exhausted on January 1, 1892. The proportion usually so held at that date in previous years could not be ascertained.

The countries to which the hops are exported and from whence hops are imported into (or shipped through) Austria-Hungary and the quantity thereof are shown by the following tables:

Table showing the quantity of hops exported from and imported into Austria-Hungary during the years 1888-'92.

Year.	Imports.	Exports.
	Met. cent.	*Met. cent.*
1888	7,034	32,386
1889	5,941	30,192
1890	5,836	25,212
1891	5,326	32,882
1892 (January to June, inclusive)	2,064	5,875

Table showing the movement of the Austrian import and export during the several months of 1889, 1890, 1891, and the first six months of 1892.

Month.	Imports.				Exports.			
	1889.	1890.	1891.	1892.	1889.	1890.	1891.	1892.
	Met. cent.	*Met. cent.*	*Met. cent.*	*Met. cent.*	*Met. cent.*	*Met. cent.*	*Met. cent.*	*Met. cent.*
January	273	437	277	459	2,032	2,090	1,346	1,296
February	167	240	236	503	1,018	1,338	985	1,979
March	64	302	149	127	1,356	741	876	883
April	77	224	158	171	1,026	453	636	694
May	69	128	96	650	670	304	588	769
June	195	118	149	154	1,108	313	391	304
July	53	181	144	....	618	152	384	....
August	86	67	271	....	870	375	548	....
September	1,965	1,324	447	....	3,857	2,942	1,708	....
October	1,887	1,585	1,061	....	8,447	7,473	10,426	....
November	1,240	880	870	....	5,958	5,603	11,485	....
December	849	356	1,468	....	3,232	3,428	3,513	....
Total	5,941	5,836	5,326	1,065	30,192	25,212	32,882	4,882

Both the import and export during the first half year of 1892 show a decrease as compared with the same period of 1891. The import from January to July, 1892, was 1,065 metric centners, against 2,064 metric centners in 1891, a decrease of 999 metric centners. The export for the same period in 1892 was 4,882 metric centners, against 5,875 metric centners in 1891, showing a decrease of 993 metric centners.

From the above table it will be seen that the chief transactions in hops occur during the months of September, October, November, and December.

Table showing the countries whence hops were imported into Austria in 1891.

Country.	Quantity.	Country.	Quantity.
	Met. cent.		*Met. cent.*
Germany	4,233	Servia	6
Italy	5	Unknown	18
Russia	1,063	Total	*5,326
Switzerland	1		

*Of this, 18 metric centners were goods returned.

Table showing the countries to which hops were exported from Austria in 1891.

To—	Quantity.	To—	Quantity.
	Met. cent.		*Met. cent.*
Trieste*	32	Turkey	8
Fiume*	3	Roumania	193
Hamburg and Bremen*	2,309	Servia	256
Germany	23,487	Denmark	2,006
Great Britain	801	Netherlands	1,230
France	972	Belgium	652
Italy	315	Unknown	538
Russia	155	Total	32,886
Switzerland	929		

* Destination not stated.

Table showing the countries from and to which hops were forwarded through Austria in 1891.

From—	To—	Quantity.
		Met. cent.
Germany	Trieste*	84
	Germany	8
	Italy	897
	Russia	21
	Switzerland	15
	Roumania	94
	Servia	7
	Bulgaria	34
	Total for Germany	1,160
Russia	Hamburg and Bremen*	108
	Germany	1,383
	Total for Russia	1,491
Other countries	Germany	3
	Italy	11
	Servia	3
	Bulgaria	3
	Total for other countries	20
	Grand total	2,671

* Destination not stated.

This grand total was forwarded as follows:

To—	Quantity.	To—	Quantity.
	Met. cent.		*Met. cent.*
Trieste*	84	Roumania	94
Hamburg and Bremen*	108	Servia	10
Germany	1,394	Bulgaria	37
Italy	908	Total	2,671
Russia	21		
Switzerland	15		

* Destination not stated.

There are no statistics of former years giving the names of those countries to which hops were exported or from which they were imported.

The range of prices for the 1891 crop has been from 80 to 120 florins per 50 kilograms (half a metric centner), which, if the florin be calculated at the present market value of 40 cents, would make 14½ to 21¾ cents per pound. The price is now slowly but steadily declining from the highest figure (120 florins).

Table showing the average price for 50 kilograms of Saatz hops at the opening, middle, and close of each harvest from 1875 to 1889.

Year.	Opening.	Middle.	Close.*
	Florins.	*Florins.*	*Florins.*
1875	110	60	60
1876	300	380	320
1877	110	100	90
1878	115	130	70
1879	150	140	100
1880	100	90	100
1881	130	120	80
1882	160	280	260
1883	160	150	130
1884	110	125	120
1885	80	70	60
1886	105	100	85
1887	110	145	120
1888	150	130	120
1889	85	60	70 to 80

* The last day of each year is taken as the close of the harvest.

Table showing the average price for 50 kilograms of Auscha red hops at the opening, middle, and close of each harvest from 1879 to 1889.

Year.	Opening.	Middle.	Close.
	Florins.	*Florins.*	*Florins.*
1879	85	65	30
1880	45	35	60
1881	80	50	55
1882	100	280	150
1883	85	110	90
1884	80	60	35
1885	35	30	15
1886	60	40	20
1887	40	20	30
1888	90	50	30
1889	60	35	50

The average price of green hops from 1880 to 1889 has been computed at 35 florins per 50 kilograms.

The addresses of three of the most prominent hop-growers, who are recognized as capable judges of the local hop crops, are: Saatzer Hopfenbauverein, at Saatz, Bohemia; Rakovitzer Hopfenbauverein, at Rakovitz, Bohemia; Prince Salm, at New Cilly, Styria. The addresses of three large dealers are: M. H. Russ & Co., at Prague; M. Gütermann Söhne, at Saatz, Bohemia; Benjamin Schwarz & Söhne, at Auscha, Bohemia.

The chief association of hop-growers and dealers is the Hopfen-Signir-Halle (Hall for Marking Hops), at Saatz. The body of managing directors is composed of the "Bürgermeister" (mayor) of Saatz, who is presiding officer; five members of the common council of Saatz; five members of the Hopfenbauverein (Association of Hop-Growers), at Saatz; five members of the Association for Trade in Hops and Products, of Saatz; five members of the communities of the hop-growing district who joined the Hopfenhallenverband; and five members of the communities of the hop-growing county who joined the Hopfenhallenverband.

The names and addresses of some of the newspapers that publish local or general reports about the hop crop or market, are: Brauer- und Hopfenzeitung Gambrinus, at Vienna, 5–1 Wienstrasse, No. 12; Allgemeine Leitschrift für Brauerei und Mälzerei, at Vienna, IX Berggasse, No. 8; Der Böhmische Bierbrauer, at Prague; Saazer Hopfen- und Brauerzeitung, at Saatz, Bohemia.

THE WORLD'S BEER PRODUCTION.

There can be no doubt about the hop industry; that it is growing into greater and greater significance must be admitted when it is shown that the world's consumption of beer is constantly increasing. As is shown by the accompanying table, the production of beer in Austria has increased from 13,000,000 hectoliters in 1885 to 15,000,000 hectoliters in 1891, although the number of breweries has decreased from 1,979 to 1,871. The production of beer throughout the world has increased from 171,000,000 hectoliters in 1888 to 196,000,000 hectoliters in 1891. The fact, too, will have to be considered that, in consequence of the devastation caused by the phylloxera, etc., the cultivating of the vine has become precarious, the quantity of the wine produced has lessened, and wine has become dearer; hence in the wine-consuming countries wine as a beverage has to some extent already been supplanted by beer. In Austria some of the vineyards destroyed by the phylloxera have been transformed into hop gardens. From the whole it may be inferred that in most of the beer-producing countries which are mentioned, and which do not grow hops sufficient to supply their home demands, there is likely to arise an export demand for American hops if both the quality of American hops and the manner of exporting them be such as to answer foreign demands.[*]

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[*] NOTE BY THE DEPARTMENT.—The consul-general must mean an increased demand, for the exports of American hops in 1891 amounted to 8,736,080 pounds, valued at $2,327,474.

Table showing the number of breweries, the quantity of beer produced, the consumption of malt, and the consumption and production of hops in the various beer-producing countries of the world from 1887 to 1891.

Country and year.	Breweries.	Beer produced.	Malt consumed.	Hops.	
				Consumed.	Produced.
America:	*Number.*	*Hectoliters.*	*Met. cent.*	*Met. cent.*	*Met. cent.*
1887	2,170	39,455,157	15,782,062	135,000	115,000
1888	2,200	34,815,762	13,370,250	140,000	185,000
1889	2,144	36,918,644	13,861,500	150,000	215,000
1890	2,262	41,059,950	12,317,985	130,000	140,000
1891	2,325	44,354,511	15,671,125	140,430	156,000
United Kingdom:					
1887	12,938	46,042,323	18,416,829	350,000	212,500
1888	12,874	45,877,723	18,689,400	300,000	115,000
1889	11,997	46,852,991	18,939,700	290,000	260,000
1890	12,000	56,744,448	22,697,779	300,000	135,000
1891	11,233	52,707,460	18,476,865	293,642	225,000
Germany:					
1887	26,143	44,988,195	17,532,038	332,525	246,100
1888	26,240	47,336,455	18,160,744	184,000	261,900
1889	25,434	47,602,939	18,208,410	197,500	321,950
1890	25,415	52,314,348	15,694,243	177,000	119,500
1891	25,241	52,722,636	15,047,601	182,840	220,500
Austria-Hungary:					
1887	1,979	13,418,110	3,285,736	49,838	68,500
1888	1,971	13,184,026	3,050,529	50,000	120,200
1889	1,952	13,728,431	3,549,564	51,400	76,025
1890	1,913	14,382,407	3,438,452	52,437	68,000
1891	1,871	15,079,705	3,050,072	54,808	70,870
Belgium:					
1887	1,260	9,200,000	3,280,000	39,000	48,000
1888	1,270	10,195,603	3,340,000	45,000	52,000
1889	2,788	9,600,000	3,231,000	38,500	55,000
1890	2,786	9,889,856	1,966,956	38,500	11,000
1891	2,832	9,845,537	2,964,473	38,250	23,000
France:					
1887	2,883	9,186,000	3,860,000	40,000	35,500
1888	2,844	7,941,811	2,670,880	40,000	34,950
1889	2,854	8,111,245	2,721,500	35,000	34,000
1890	2,774	9,365,640	1,309,692	35,000	9,500
1891	2,761	9,476,183	2,884,760	34,800	14,000
Russia:					
1887	1,407	3,578,000	1,531,200	14,500	23,000
1888	1,365	3,555,315	1,524,600	14,000	12,000
1889	1,360	2,928,573	1,002,500	12,500	17,000
1890	1,296	3,954,392	1,086,317	12,500	12,000
1891	1,233	4,456,860	1,158,780	13,375	13,000
Denmark:					
1887	400	1,680,000	840,000	8,000	1,200
1888	394	1,874,212	921,000	8,000	1,200
1889	371	2,186,000	993,400	7,000	1,500
1890	382	2,251,580	675,474	7,000	1,000
1891	292	2,185,600	546,400	7,300	1,750
Luxemburg:					
1889	14	93,256	22,407	375	....
1890	15	97,819	29,447	....	....
1891	15	94,250	22,680	300	....

Table showing the number of breweries, the quantity of beer produced, etc.—Continued.

Country and year.	Breweries.	Beer produced.	Malt consumed.	Hops.	
				Consumed.	Produced.
	Number.	*Hectoliters.*	*Met. cent.*	*Met. cent.*	*Met. cent.*
Netherlands:					
1887	460	1,630,000	652,000	7,500	2,500
1888	452	1,580,000	630,000	7,500	2,000
1889	461	1,071,429	590,000	7,500	2,500
1890	551	1,602,356	560,824	7,500	1,500
1891	528	1,558,280	389,570	6,175	3,000
Spain:					
1887	70	1,328,000	531,200	7,700	....
1888	81	1,590,400	548,000	7,700	....
1889	68	1,025,000	500,000	6,950	....
1890	70	110,450	66,270	....	....
1891	67	184,600	44,304	550	....
Switzerland:					
1887	420	1,004,000	401,600	4,000	300
1888	417	1,119,984	452,000	4,000	300
1889	415	1,186,483	473,000	2,500	350
1890	425	1,209,654	473,200	2,500	250
1891	413	1,391,000	320,060	3,100	500
Sweden:					
1887	132	914,000	457,000	4,550	500
1888	142	1,008,320	490,000	*4,500	*250
1889	140	1,024,600	495,000	3,500	*300
1890	360	1,146,725	498,000	3,500	*250
1891	382	1,068,270	276,067	3,400	*600
Norway:					
1887	382	720,000	288,000	3,850	....
1888	381	694,800	271,000	....	....
1889	46	712,415	291,000	1,750	....
1890	47	726,663	294,000	2,000	....
1891	43	516,390	130,800	1,500	....
Italy:					
1887	140	145,304	58,121	500	....
1888	127	174,921	64,600	500	....
1889	125	137,745	55,400	750	....
1890	132	185,400	65,400	1,000	....
1891	139	156,224	36,200	600	....
Roumania:					
1887	5	80,000	28,000	850	....
1888	11	84,000	29,100	850	....
1889	17	100,030	35,000	1,000	....
1890	17	108,000	32,400	1,020	....
1891	24	202,334	44,513	700	....
Servia:					
1887	4	62,000	27,500	620	....
1888	12	50,000	21,400	620	....
1889	15	98,000	33,600	868	....
1890	14	87,000	26,100	750	....
1891	11	82,500	18,300	300	....
Bulgaria:					
1890	13	28,000	8,400	250	....
1891	15	33,200	7,350	100	....
Greece:					
1887	8	55,000	27,500	580	....
1888	8	59,605	29,000	580	....
1889	6	64,284	20,000	450	....
1890	7	71,225	21,367	500	....
1891	6	63,600	14,200	200	....

*Together with Norway.

Table showing the number of breweries, the quantity of beer produced, etc.—Continued.

Country and year.	Breweries.	Beer produced.	Malt consumed.	Hops.	
				Consumed.	Produced.
British India:	*Number.*	*Hectoliters.*	*Met. cent.*	*Met. cent.*	*Met. cent.*
1888	19	220,712	55,153	700	.....
1889	19	231,965	69,589	2,000	.....
1890	22	238,860	60,300	1,000	.....
Recapitulation:					
1887	50,801	173,486,089	66,992,986	999,013	803,500
1888	50,908	171,363,649	64,317,656	807,950	784,600
1889	50,226	173,662,717	65,078,134	806,243	983,625
1890	50,498	195,678,328	61,331,895	773,457	548,000
1891	49,453	196,418,000	61,164,420	783,321	728,220

The data for the above table were collected chiefly from the Brauer- und Hopfenzeitung.

It will be seen that, while the number of breweries has decreased from 50,908 in 1888 to 49,453 in 1891, the production of beer has increased from 171,363,649 hectoliters (4,475,913,516 gallons) in 1888 to 196,418,000 hectoliters (5,189,774,306 gallons) in 1891; that the consumption of malt shows a decrease, which is ascribed to the improved manner of applying the virtue of malt; and that the stock of hops in all the countries taken together amounted to about 320,000 metric centners at the close of December, 1891.

The leading beer-producing countries in 1891 were England and Germany, each with a production of 52,700,000 hectoliters, followed by the United States with 44,000,000; Austria, 15,000,000; Belgium and France, each 9,000,000; Russia, 4,000,000; Denmark, 2,000,000; Netherlands, 1,500,000; and Switzerland, 1,000,000 hectoliters. The other countries produced less than 1,000,000 hectoliters. The chief importing countries of Austrian hops are Germany, France, Switzerland, Denmark, Netherlands, Great Britain, Belgium, etc.

It may be perfectly safe to assume that the hop-importing countries will avail themselves of any source that is able to supply their hop demand in a manner to answer their expectations.

JULIUS GOLDSCHMIDT,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Vienna, August 28, 1892.

STAVES IN GUADELOUPE.

REPORT BY CONSUL BARTLETT.

There are no staves in their rough state imported into the island of Guadeloupe.

There are imported, annually, from Portland and Baltimore, from 20,000 to 25,000 new very light oak sugar shooks, weighing, with hard-wood heads, from 56 to 60 kilograms, which are used for making hogsheads to ship white usine sugar to France. The reason why they are required to be so light is that the tare allowed by the custom-house in France on a hogshead with hard-wood heads is 12 per cent; therefore, the lighter the hogsheads the less duties the shippers have to pay. These shooks make what is termed a 36-inch-head hogshead, containing about 750 kilograms of dry white usine sugar. The greater part of this usine sugar is shipped in bags.

The muscovado sugar, which is not manufactured now to the extent it formerly was, is shipped in hogsheads containing each about 600 kilograms, and made from staves of old hogsheads, with a small mixture of new staves hewn out of colonial wood.

There are imported annually from Portland or Baltimore from 10,000 to 12,000 rum shooks, all prepared and ready to be set up on arrival. They are made of good, thick white-oak staves and white-oak heads. The casks made from these shooks contain from 250 to 300 liters of rum. This rum is all shipped to France.

They have of late commenced to import from the United States a small quantity of barrel shooks, with heads. When put up they contain 150 kilograms of usine sugar.

CHARLES BARTLETT,
Consul.

UNITED STATES CONSULATE,
Guadeloupe, April 23, 1892.

FOOD PRICES IN HESSE.

REPORT BY COMMERCIAL AGENT SMITH, OF MAYENCE.

I transmit herewith the prices of the leading articles of food in the grand duchy of Hesse during the year 1891, compared with 1890, which statistics have just been published by the Hessian Government:

Table showing the prices per 100 kilograms of the leading articles of food.

Articles.	1891.	1890.
Wheat	$5.53	$4.90
Rye	5.09	4.25
Barley	4.29	4.35
Oats	3.85	3.99
Potatoes	1.66	1.05
Peas	6.66	6.11
Beans	6.72	6.55
Hay	1.43	1.38
Straw	1.22	1.22

The higher prices for wheat, rye, and potatoes were due to the poor character of the crops of 1891 in Europe, about which so much has been published and read that it is not necessary to treat of the matter here at length.

The following articles, quoted by the kilogram (2⅕ pounds), brought the accompanying prices per kilogram:

Articles.	1891.	1890.
	Cents.	*Cents.*
Beef:		
With bone*	33⅕	32⅗
Without bone	41⅗	40⅕
Cow flesh:		
With bone	30	29
Without bone	35⁸⁄₁₀	35⅕
Veal:		
With bone	29⁷⁄₁₀	29⅕
Without bone	37⅘	36⁸⁄₁₀
Mutton: †		
With bone	30	29⅕
Without bone	37⅒	36⅗
Sheep's flesh: ‡		
With bone	25⁸⁄₁₀	26⅗
Without bone	30⅕	29
Pork:		
With bone	30⅗	32⅘
Without bone	36⅗	37⅗
Flour:		
Wheat	9	9⅕
Rye	7⅘	6⁸⁄₁₀
Bread:		
Mixed wheat and rye	7⅒	6⅗
Rye	6⅗	5⁷⁄₁₀
Butter	49	48⅕
Roasted coffee	77⅘	76⅗

* It is the custom here to throw in a little part of the waste bone of the animal, unless the purchase is to the contrary.

† This is the flesh of the male sheep.

‡ Flesh of female.

I pay for certain articles of food the following prices: Roast beef (rib piece), with extra bone thrown in, 42⅗ cents per kilogram (19⅓ cents per American pound); beefsteak (round steak), with no extra bone, 57⅒ cents per kilogram (25⅘ cents per pound); beefsteak from first cut, what is known here and in France as filet, corresponding to our porterhouse steak, but without the bone and gristle portion, 95 cents per kilogram (43⅕ cents per pound); ordinary beef for soup purposes, with extra bone, 31⅗ cents per kilogram (14⁸⁄₁₀ cents per pound); bones for soup (which I believe are given away in the United States), 16⁸⁄₁₀ cents per kilogram (7⁴⁄₇ cents per pound); mutton chops, which are sold by the chop, large or small at the same price, and not by weight, 9½ cents apiece; veal cutlets, sold in the same way at the same price; pork chops, sold by the chop, from 7 to 9½ cents each, according to size; beef suet, 23⅗ cents per kilogram (10⁸⁄₁₁ cents per pound); veal for roasting (rib piece), 33⅓ cents per kilogram with extra bone (15⅙ cents per pound); ordinary veal, with extra bone, same price; leg of mutton, with extra bone added, 38 cents per kilogram (17⅓ cents per pound); mutton from other parts of the sheep, 33⅓ cents per kilogram (15⅙ cents per pound); calf's liver, 38 cents per kilogram (17⅓ cents per pound);

pickled pork, 38 cents per kilogram (17⅛ cents per pound); ordinary sausage for frying, 38 cents per kilogram (17⅛ cents per pound); hog's fat to make lard, 38 cents per kilogram (17⅛ cents per pound), as lard has to be made at home; wheat flour, 10⅗ cents per kilogram (4 8/10 cents per pound); wheat bread, baked in English style, 8½ cents per double loaf weighing 1 1/10 pounds; best butter 66⅖ cents per kilogram all the year round (30⅛ cents per pound); medium butter, 59⅕ cents per kilogram (27 cents per pound); rice, 13⅛ cents per kilogram (6 cents per pound); potatoes, rather variable in price; fine coffee, Mocha and Java mixed, $1.14 per kilogram (51 8/11 cents per pound). The coffee in general use here costs 89⅗ cents per kilogram (40 7/11 cents per pound). The commonest kind of coffee, hardly drinkable by anybody, brings 57 cents per kilogram (26 cents per pound). For coffee for servants 71⅗ cents per kilogram (32½ cents per pound) is paid.

In regard to meats, it should be said that the butchers here have the objectionable practice of usually throwing in extra bone with the meat bought, unless an extra price is paid for meat without this additional bone. They are accustomed to putting in any kind of bone, and one may get the bones of swine along with roast beef. In consequence of this bone species of legerdemain and a very different manner of cutting up animals, it is impossible to give retail meat prices capable of accurate comparisons with those prevailing in American markets.

The whole system of meat-selling here is different from that in vogue in the United States. The butcher here does not stand in any market with his meat exposed in competition with that of others, but has a shop, though to this shop one never goes. No gentleman or lady ever thinks of going regularly to the meat stores. On the evening of each day the butcher sends a man around to his various customers to take their orders for the morrow. Then he kills his animal or animals, according to the demand, and parcels the carcass out among his customers. They have to take anything, as it were, that comes to them; and if they order a roast of beef or a beefsteak they are never sure what part of the animal it is coming from. They are regular customers, and are bound down to some one man, with whom they settle monthly. You may get out of patience with him and go to another of the same fraternity, but will probably fare no better and may do worse.

JAMES H. SMITH,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Mayence, June 1, 1892.

IMPROVEMENT AND ADULTERATION OF GERMAN WINE.

REPORT BY COMMERCIAL AGENT SMITH, OF MAYENCE.

I transmit herewith a translation of a law recently enacted by the German Parliament respecting the rational treatment and adulteration of wine, which measure has been passed at the earnest solicitation of the wine trade of Germany, which for several years past has been energetically urging upon the legislators of the Empire the necessity of a statute permitting the harmless manipulation of wine and accurately defining what should constitute illegal adulteration. A measure passed in May, 1879, to prohibit and regulate the manufacture and sale of foods and drinks adulterated or injurious to health had, by the general character of its language, application to wine, and made all artificial modification of the juice of the grape, whether harmful or not in its effect upon the health of the consumer, a penal offense, for which fine or imprisonment, or both, could, provided it was sold as wine and not as a manufactured article, be imposed, the tenth section of the act, bearing upon wine, reading:

> With imprisonment up to six months and fine up to 1,500 marks [$357], or either, will be subject—
>
> (1) Whoever, with intent to deceive in trade and business, imitates or adulterates articles of food or drink.
>
> (2) Whoever knowingly, with concealment of the fact, sells or offers for sale, under a designation leading to deception, foods or drinks which are spoiled, counterfeit, or adulterated.

This was much too sweeping a piece of legislation in its effect upon wine for wine-growers and the wine trade, and, like all legislative enactments of too comprehensive a nature, was, and to a large extent had to be, ignored and violated by wine-producers and wine dealers. The mere addition of water and sugar necessary at times, especially in years of bad vintages, to make the wine drinkable was a contravention of the law, unless the resulting product was labeled "made wine," which term, as can well be imagined, is always a galling designation to dealers in wines.

The legislation was harassing to the wine trade in a high degree and a constant source of vexation to it, as it could not undertake to label its wines "manufactured," nor yet openly manipulate them. It was no secret that nearly everybody, if not everybody, particularly the peasants, greatly augmented the quantity of common wines grown by adding sugared water and alcohol to them or improved the sour must of inferior vintages in like manner. Both the reputable and disreputable engaged in these practices, but to the former it was always a source of annoyance that a necessary and harmless treatment of wine should be a legal offense for which they might at any time be called upon to answer. The Reichstag has, therefore, year after year, been called upon by a determined party to do something in the matter and remove the rational improvement of wine from the curse of the law;

but nothing decisive was done on its part until recently, when it passed the bill whose provisions are hereto subjoined.

The addition to wine before fermentation of sugar and water to reduce immoderate acidity present should not have to be labeled "made wine," it was argued, as it was not a product of manufacture, but simply the improved must of a bad vintage, which otherwise, without such treatment, would be either undrinkable or objectionable; for, while a wine from a must with 12 per cent of sugar and 14 per thousand of acidity is hardly drinkable, by clever treatment of the same must, without the use of deleterious substances, quite an agreeable wine is obtained. Such a manipulation is a necessity, not only to wine-growers, but to wine-consumers, to make palatable the wines of poor years which contain an excessive amount of acidity and are akin to vinegar in taste. The wines of Germany are naturally sour, on account of the northerly situation of the country, and show for the most part an extraordinarily high percentage of acidity at all times, which, of course, lowers their market value in the degree to which it is present in excess. It is seldom that the grape in this part of the Empire ripens to perfection.* Unless, therefore, the wines can have their market worth enhanced by rational improvement, the grower, in the case of inferior grades of wine, would either not at all or with difficulty cover the cost of production. A succession of bad vintages made it imperative, therefore, upon the Government to lessen the outcry against the severity of the application in regard to wine of the law respecting the adulteration of foods and drinks, and to permit by statutory enactment the harmless melioration of unsatisfactory must within proper limits.

JAMES H. SMITH,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Mayence, May 30, 1892.

LAW RELATING TO IMPROVEMENT AND ADULTERATION OF WINE.

[Inclosure 1 in Commercial Agent Smith's report.—Translation.]

SECTION 1. The following-named substances, viz, soluble aluminous salts (alum and the like), compounds of barytum, boracic acid, glycerin, kermes, compounds of magnesium, salicylic acid, impure (containing unrefined fusel oil) spirit, impure (not technically pure) starch sugar, compounds of strontia, aniline coloring matter, or mixtures containing any one of these coloring matters are forbidden to be added to wine, vinous, or vinous-like liquors, intended for the use of others as nourishments or luxuries.

SEC. 2. Wine, vinous, or vinous-like beverages, to which, contrary to the provisions of section 1, any one of the therein mentioned substances has been added, are not to be sold nor offered for sale. The like applies also to red wine when its percentage of sulphuric acid per liter of liquid measure amounts to more than is met with in 2 grams of neutral sulphate of potassium. This, however, has no application to such red wines of foreign origin as are sold as dessert wines (that is, southern sweet wines).

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* It is officially reckoned that on the average in every twelve years one vintage is splendid, four good, three medium, and four bad.

SEC. 3. As adulteration or imitation of wine within the meaning of section 10 of the act of May 14, 1879, respecting the vending of articles of nourishment, use, and luxury, is not to be considered:

(1) The recognized cellar treatment of wine, including preservative means, even when alcohol or slight quantities of mechanically working clarifying matters (albumen, gelatin, isinglass, and the like), kitchen salt, tannin, carbonic acid, sulphurous acid, or sulphuric acid arising thereupon, are added; nevertheless the quantity of alcohol added to wines vended as German is not to exceed 1 part in 100 parts of wine.

(2) The mixing (blending) of wine with wine.

(3) The disoxydation by means of pure precipitated carbonate of lime.

(4) The addition of technically pure cane, beet, or fruit sugar, technically pure starch sugar, also in liquid solution; nevertheless, the amount of extract and mineral matter in the wine is not to be reduced by the addition of sugar water below the limits observed as a rule in unsugared wine of the wine-growing region, which this [the manipulated] wine in name is meant to correspond to.

SEC. 4. To be held as adulteration of wine within the meaning of section 10 of the act of May 14, 1879, is especially the creation of wine by (1) pouring sugar water on grapes wholly or partly pressed; (2) pouring sugar water upon wine lees; (3) using raisins, currants, saccharine, or other matter than in section 3, No. 4, designated sweetening substances, except as provided in clause 3 of that section; (4) employing acid or acidiferous substances or boquet creatives; (5) using rubber or other solids whereby the amount of extracts is increased, except as provided in section 3, Nos. 1 and 4. Beverages produced by means of any one of the above-mentioned processes, or mixtures of the same with wine, can be sold or offered for sale only under a designation making manifest their character, or otherwise distinguishing them from wine (as "wine from the husks of grapes," from "grounds," "raisin wine," "artificial wine," or the like). The bare addition of raisins to must or wine does not, however, pass for adulteration in the case of such wines as are sold as dessert wines (sweet or southern wines) of foreign origin.

SEC. 5. The provisions of sections 3 and 4 have no application to sparkling wines.

SEC. 6. The employment of saccharine and similar sweetening substances in making sparkling wine or wine from fruits, including wine from berries, is to be held as adulteration within the meaning of section 10 of the law of May 14, 1879.

SEC. 7. With imprisonment up to six months and fine up to 1,500 marks [$357], or either, will be subject (1) whoever willfully offends against the provisions of sections 1 or 2; (2) whoever knowingly sells or offers for sale wine containing an addition of the kind mentioned in section 3, No. 4, under designations which would lead to the belief that such an addition had not been made.

SEC. 8. If the act mentioned in section 7, No. 1, be committed through carelessness, a fine up to 150 marks [$35.70] or imprisonment is to be imposed.

SEC. 9. In cases under section 7, No. 1, and section 8 confiscation of the beverages manipulated contrary to their provisions and sold or offered for sale can be made, regardless of whether they belong to the condemned person or not. If the prosecution or condemnation of a particular person be not practicable, the confiscation can equally well take place.

SEC. 10. The provisions of the act of May 14, 1879, remain in force so far as sections 3 to 6 of the present act do not contain provisions inconsistent therewith. The provisions in sections 16 and 17* of the act of May 14, 1879, apply also to persons acting in contravention of the present act.

SEC. 11. The Bundesrath is empowered to fix the extent to which (1) the substances mentioned in section 3, No. 1, shall be permitted to enter wine in its cellar treatment, as well as (2) the diminution of the amount of extracts, mineral substances, etc., as provided by section 3, No. 4.

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*These sections are in reference to costs of suits.

SEC. 12. The Bundesrath is empowered to fix the rules by which the inspection of vinous and vinous-like liquors shall be made, according to the provisions of this act, as well as that of May 14, 1879, in its relation to wine.

SEC. 13. The provisions of section 2 are not to go into effect until October 1, 1892.

The Castle at Berlin, April 20, 1892.

PROCLAMATION RESPECTING THE EXECUTION OF THE ACT REGARDING TRADE IN WINE AND VINOUS AND VINOUS-LIKE LIQUORS OF APRIL 20, 1892.

[Inclosure 2 in Commercial Agent Smith's report.—Translation.]

By virtue of section 11 of the act respecting trade in wine, vinous and vinous-like liquors of April 20, 1892, the Bundesrath has determined to fix the limits of diminution of the rate of extracts and mineral constituents (section 3, No. 4, of the act) as follows: In the case of wine which from its denomination is from a domestic wine district is through the addition of a watery solution of sugar.

(1) The total quantity of extract substances not to be lowered below 1.5 grams; the amount of extract after draining off the acids not volatile not to be below 1.1 grams; the extracts remaining after removal of the free acids not to be below 1 gram.

(2) The standard of mineral constituents not to be below 0.14 gram in 100 cubic centimeters of wine.

BERLIN, *April 29, 1892.*

RAILWAY RATES IN GREAT BRITAIN.

REPORT BY CONSUL SHERMAN, OF LIVERPOOL.

The railway passenger rates may be taken generally as 2, 3, and 4 cents per mile for the first, second, and third classes, respectively. Competition, however, occasionally reduces the first and second class rates.

Railway rates for freight are so numerous and complex, by reason of differential rates, the almost illimitable amount of detail, the variable circumstances which attend the rating of the numerous classes of goods, and the difference between the charges which the railway companies are by Parliament empowered to demand in respect of one line and those which they may exact for conveyance over another, that it would be quite impossible to show them in brief. In fact, nothing less than a complete schedule of the rates on each line, for each class of trains, for each distance and each class of goods, etc., would answer this question. Further, railway rates and charges, as a result of the passing of the railway and canal traffic act in 1888, are at present undergoing revision throughout the country and will come into force at the beginning of next year.

THOS. H. SHERMAN,
Consul.

UNITED STATES CONSULATE,
Liverpool, July 18, 1892.

AMERICANS IN JERUSALEM.

REPORT BY CONSUL MERRILL.

Regarding American citizens in this country, I have done my best to give replies. In the case of the first and second questions, in regard to the number of Americans residing during the past year in the Jerusalem consular district and the average number of Americans resident per year during the past ten years, it was easy, because I have my own consular records to refer to.

The number of Americans residing during the past year in the Jerusalem consular district was 413, of whom 370 were naturalized.

The average number per year of Americans resident during the past ten years in the Jerusalem consular district was 310, of whom 270 were naturalized.

The third question, regarding the number of transient Americans arriving at and departing from the Jerusalem consular district during the past year, was most difficult, because travelers come in such a variety of ways—with tourist companies, with private dragomans, or simply by themselves. We reckon as the "tourist season" from the 1st of June until the 1st of June the following year, and I have put the number of American travelers arriving in Palestine from June 1, 1891, to June 1, 1892, at 450, and from figures actually in my possession I am certain that the number is not overstated. This is about 40 per cent of all the travelers that have been recorded as arriving in Palestine during the period mentioned. It may be necessary for me to say, to avoid any misapprehension, that we do not reckon as "travelers" or "tourists" people who visit this country as "pilgrims," of which class there are from 5,000 to 10,000 every year. This year, however, owing to nearly four months of quarantine, the number of pilgrims has been small.

As to the number of transient Americans arriving at and departing from the Jerusalem consular district for the past ten years, it is not possible to answer, except I can say that the influx of travelers to this country steadily increases from year to year.

The question in regard to the approximate amount of funds drawn from the banks and bankers in the Jerusalem consular district by Americans under letters of credit, drafts, checks, etc., during the past year is likewise a very difficult one. To get at it, even approximately, requires so much work and the asking of so many favors from the bankers that I will not attempt a reply. Moreover, the Palestine trip is so mixed up with Europe, and especially with Egypt, in so far as a traveler's money is concerned, that no satisfactory statement of the nature required in the question could be given. In place of the answer required, I venture to lay before you an estimate of the amount of money left in Palestine the past year by American tourists or visitors. Some travelers visit Jerusalem and the neighboring places only, while others go through the country to Damascus and leave it at Beirut.

The number of American travelers was 450. Three hundred at ten days each equals 3,000 days; 150 at thirty days each, 4,500 days; total number of days, 7,500. From information from agents of tourist companies, hotel proprietors, or dragomans, added to my own experience and observation (I have resided in this country upwards of eight years altogether), a person can not make the Palestine trip for a less amount than $5 a day, while most travelers spend three—even four—times that amount. At $10 per day for each person we have $75,000. This should be regarded as the minimum estimate, and embraces American travelers alone, who, as I have stated, are only 40 per cent of the entire number for the current year. Some years the number of American visitors to this country forms fully 50 per cent of the whole number. On the other hand, Americans spend money more freely than, say, the German travelers, although I do not think they exceed the English in this respect. Thus it will be seen that through travelers a large amount of money is every year brought into this impoverished land.

SELAH MERRILL,
Consul.

UNITED STATES CONSULATE,
Jerusalem, May 31, 1892.

KEROSENE-OIL TRADE OF NINGPO.

REPORT BY CONSUL FOWLER.

Until within a few years the kerosene-oil business was completely in the hands of the United States dealers. American kerosene was the only oil quoted; then came its competitor from Batoum, the latter at times considerably decreasing the business in American oil. Last year a new rival made its appearance, the kerosene oil from Peru, and now another competitor, though at present a weak one, threatens to invade the China market. I refer to the Langkat oil. I inclose articles from the Shanghai papers referring to this oil.

To quote from the statistical report of the imperial customs for the year 1891:

> To exemplify the extent to which kerosene oil is appreciated as a cheap illuminant, it may be noted that the consumption has risen from 8,256,000 gallons in 1882 to 49,348,000 gallons in 1891.

Of this total Russian oil represents 10,000,000 gallons. The comparative increase in the rival oil is shown in the following table:

Year.	American.	Russian.
	Gallons.	*Gallons.*
1891	39,348,477	10,000,900
1890	23,591,113	7,237,611
1889	14,999,948	5,653,478

These figures include the total imports for all China. Of the total amount of oil imported in 1889, nearly 73 per cent was American and 27 per cent Russian; of the kerosene imported in 1891, 80 per cent was American and 20 per cent Russian. Approximately, China imported from America 24,348-535 gallons more in 1891 than in 1889; on the other hand, Russian oil increased during the same period 4,345,531 gallons. Thus the American oil more than holds its own in the ratio of increased importations.

In the consular district of Ningpo, comprising the whole province of Che-Kiang, containing 39,500 square miles and a population variously stated from 25,000,000 to 35,000,000, during the year just past (1891) there were entered through the Ningpo custom-house 1,879,730 gallons of American kerosene, valued at 266,983 Haikwan taels, and 579,400 gallons of Russian, valued at 78,063 Haikwan taels. The Haikwan (customs) tael is worth $1.20.

Through the custom-house at Wenchow, in this district, there were entered 185,000 gallons of American, valued at 27,100 Haikwan taels, and 185,000 gallons of Russian, valued at 25,195 Haikwan taels. There were sent overland to various towns in this district under transit passes from Shanghai, 1,151,800 gallons of American, 235,000 gallons of Russian, and 8,500 gallons of Peruvian. The total amount of oil imported from Shanghai through customs ports and overland under transit passes was as follows:

Description.	Quantity.	Value.
	Gallons.	*Haikwan taels.*
American	3,216,530	304,219
Russian	999,400	119,723
Peruvian	8,500	7,300
Total	4,224,430	431,242

Estimating the population at 25,000,000 (a very low figure) and each family as containing five persons, and that each of these families consumed 1 gallon of oil last year, it would appear that more than 750,000 families did not use a drop of kerosene; but these estimates are far from showing the true number of families that have not yet commenced the use of kerosene, because it follows that when a family uses 1 gallon it would naturally use more, therefore increasing the consumption and, of course, lessening the number of families using kerosene. It would be safe to state that not more than one-fifth of the population of this district use kerosene of any kind.

Of the whole amount of American oil imported into China in 1891—39,348,477 gallons—this district took 3,216,530 gallons, or nearly 8½ per cent, valued at 304,218.84 Haikwan taels; of the total amount of Russian oil imported in the same year—10,000,902 gallons—this district took 999,400 gallons, or nearly 10 per cent, valued at 119,723 Haikwan taels; and of the total importation of Peruvian oil into China—260,020 gallons—this district consumed 8,500 gallons, valued at 7,300 Haikwan taels, or nearly 4 per cent of the whole.

The above is given with a view of pointing out what a large business is being done in oil and yet how small it is in comparison with the field. The trade is really beginning. The American oil is now supreme, but will it continue so? If our merchants at home do not look after this growing business sharply and contest every point, recent events point towards the time in the near future when the oil trade of the United States in China will be a thing of the past. The oil dealers in the United States, so far as I can see, are making no special efforts to push their sales in this Empire, although a few years ago great efforts were made, and with success; but of late years that energy has disappeared. The oil is shipped and handled year in and year out in the same manner. The only reason that American kerosene holds its own is its great superiority over the Russian; and, the price being the same, or nearly the same, to the consumer, he prefers the American for its brilliancy, which more than offsets whatever increase in price there may be, as it burns longer, gives out less smoke, and is more securely tinned than its rival, the Russian.

The Chinese have discovered that not only does kerosene give a better light than the bean or tea oil, but that it is cheaper.

Its use is not confined to the coast ports, but it is carried into the interior under a pass taken out at the custom-house (it being a foreign import). This pass is called a transit pass, and frees the merchandise mentioned therein from further exactions or likin at the stations that it passes. An enormous trade is carried on in the country. During the year 1891 2,775,810 gallons of American oil, 587,000 gallons of Russian oil, and 19,500 gallons of Peruvian oil left Shanghai overland under transit passes. The subjoined table shows the quantity sent into the cities of this district from Shanghai overland under transit passes.

Table showing the oil brought under transit passes from Shanghai into the province of Che-Kiang.

Place.	American.	Russian.	Peruvian.
	Gallons.	*Gallons.*	*Gallons.*
Shaoshying	2,000	43,000	....
Hangchow	204,600	86,800	2,000
Huchow	347,600	88,500	4,000
Chuchow	524,100	16,500	....
Chia Hsing	62,200	1,000	2,500
Chinwha	10,300	....	....
Taichow	1,000	....	....
Total	1,151,800	235,800	8,500

The inland trade of Ningpo during the year 1891 shows the greatest increase, the quantity sent inland being 884,410 gallons, against 554,650 gallons in 1890. The American oil formed the bulk of the shipments, but Russian increased from 9,790 gallons to 65,760 gallons.

The principal towns in the district to receive this oil from Ningpo in 1891 were:

Towns.	Quantity.	Towns.	Quantity.
	Gallons.		*Gallons.*
Hangchow	25,000	Chu-li-chou	22,460
Shaoshying	202,980	Kwang Hsin	199,350
Taichow	1,500	Huchow	20,350
Chinwha	143,050	Other towns	46,120
Chuchow	242,210	Total	884,410
Yenchow	5,500		

Of the foregoing, 818,650 gallons were American and 65,760 gallons were Russian, as compared with 544,860 gallons of American and 9,790 gallons of Russian oil in 1890.

The following table shows the quantity of oil sent into the country from Wenchow, in this consular district:

Towns.	American.	Russian.
	Gallons.	*Gallons.*
Chusan	390	80
Lishin	110	....
Lung Chu-an	26,740	3,550
Ping-yang	4,690	15,180
Sung-yang	1,420	540
Taichow	960	....
Tai-Ping	1,200	....
Yo-Ching	120	....
Yu-huan	100	....
Total	35,730	19,350

From Wenchow there were also sent into the Fuchau district under transit passes 6,040 gallons of American and 3,660 gallons of Russian oil.

The total amount of oil sent overland from Shanghai was as follows:

Description.	American.	Russian.	Peruvian.
	Gallons.	*Gallons.*	*Gallons.*
Ningpo district	1,151,800	235,000	8,500
Other districts	1,624,010	352,000	11,000
Total	2,775,810	587,000	19,500

Of the total amount of kerosene entered at the custom-house at Ningpo—1,879,730 gallons of American and 579,400 gallons of Russian—818,650 gallons of American and 65,760 gallons of Russian oil were sent into the interior, leaving 1,061,080 gallons of American and 513,640 gallons of Russian for local consumption among an estimated population of 3,000,000 people—about 1 gallon to every two persons for the year.

Of the total amount of oil received at the Wenchow custom-house—185,000 gallons were American and 185,000 gallons were Russian—1,000

gallons of American and 6,000 gallons of Russian were reëxported to oth
Chinese ports, 35,730 gallons of American and 19,350 gallons of Russi
were sent into the country, and 6,040 gallons of American and 3,660 g
lons of Russian were sent overland to the Fuchau consular district, leavi
for local consumption among an estimated population of 2,000,000 peop
142,230 gallons of American and 155,990 gallons of Russian.

The following table shows the consumption of oil in the country and
the treaty ports of Ningpo and Wenchow, exclusive of that reëxported or se
to other districts:

Description.	American.	Russian.	Peruvia
	Gallons.	*Gallons.*	*Gallo*
Total received (net)	3,209,490	989,740	8,
Sent inland	2,006,180	320,110	8,
For treaty ports (net)	1,203,310	669,630	....

From this we see that nearly two-thirds, or 62 per cent, of the total
American oil imported was used in the interior, and, on the other han
only about one-third of the Russian oil went inland. Again, estimating t
population of Ningpo and the adjacent towns at 3,000,000 and that of We
chow and neighborhood at 2,000,000, it will be seen that 5,000,000 peop
used 1,872,940 gallons of oil, of which more than 62 per cent was America
and that in the interior 20,000,000 people used 2,334,790 gallons of oil,
which more than 89 per cent was American.

Satisfactory as these figures are, they show room for great improveme
The market is vast and will increase. Competition for this rich field is kee
and no efforts are being spared to wrest this trade from the hands of t
United States and direct it towards Russia.

Kerosene is called by the Chinese "fire oil," and its use has spread fro
house to house, hamlet to hamlet. Far into the interior it can be seen e
posed for sale in the little shops, where it is baled out in small quantities
suit the customers, a few cash worth at a time. In some old, conservati
shops red candles burning in glass shades are still to be seen, but the sm
dealers and hucksters are gradually increasing their use of the foreign o
The red candles have been weighed in the balance and found wanting, an
not being hampered by two or three generations of respectable ancesto
who preceded them in the same line of business and who managed w
enough with candles, and with no "fing-shin" (superstitions) on the su
ject to be deranged by the change, they are, as new men, more open
innovation, and readily adopt what common sense shows is the better vehic
of light.

The necessity of supplementing its brilliancy by keeping the chimn
clean is not so generally known as it ought to be; nevertheless, with the t
lamp filled with kerosene there is less smoke and smell than with the o
native wick floating in a bowl of groundnut oil. The artisan can perfor

better work at night—work that he could scarcely do before the advent of kerosene.

Commissioners of customs have written upon this subject many times in the past, and their views are worthy of attention. One has said:

> It may be safely believed that the quantity of kerosene which China is likely to consume in future years not far distant will be vastly beyond the present importation. The quality of the oil appears bad in some cases, and fires are ascribed to its giving off inflammable gases at a dangerously low temperature.
>
> No doubt it is most important that the quality of this oil be kept up to a fair standard, otherwise the Chinese will place difficulties in the way of its sale. On the other hand, those who have observed how careless the Chinese people are in handling such hazardous articles as gunpowder and kerosene will not be surprised when they hear of disastrous fires. Efforts should be made by packers of this oil in the United States to devise for it tins calculated to facilitate the Chinese shopkeepers' custom of ladling the oil into bottles in selling, and at the same time to secure it as far as possible from risk of fire arising from this and kindred forms of carelessness in handling. If this trade be well managed by the foreigners, it ought very rapidly to assume immense proportions. Kerosene is one-third cheaper than native oil. The first cost of lamps of a new form in a country where such extreme economy prevails may have some influence in retarding the introduction of kerosene, but the Chinese make very cheap lamps for kerosene, and the people will rapidly learn where the path of true economy lies.

Russian oil first arrived in this district in 1888. The complaints against this oil are many. It is highly dangerous, smells and smokes terribly, is very poorly packed; tins corrode, owing to sulphuric acid, and consequently leak; and when once opened the oil quickly deteriorates and loses power and brilliancy. These facts are well known in the country, and, although it is sold a little cheaper, the inland consumer prefers the oil from the land of the "Flowery Flag," which he designates the "old brand" and that from Russia the "new brand." Many attempts—and I am sorry to say they are sometimes successful—are made to pass off the cheap Russian oil for the better American.

While the great strides made in the oil trade have done much to lessen the candle trade, the shipping business has been greatly benefited; for all the oil is brought to the various ports along the coast in native craft, the steamers refusing it as cargo. This carrying business has been a great boon to the coasting trade, and the sure and increasing traffic has had its effect in bettering and increasing the number of boats.

The Chinese use the tins that the oil comes in in various ways, and many shops are to be seen where a business is being done in buying empty cans. They give as much as 5 cents for an oil tin. They are used as buckets, water spouts, for roofing, for making lamps—in fact, they are put to every conceivable use.

The oil trade in China has grown upon its merits. It has been, and is now in many places, retarded by the officials and by guilds whose trade was affected by its sale. Only a few years ago the officials at this port strictly forbade the use of kerosene, but after strong pressure from the consul the order was revoked.

The oil trade of Ningpo is entirely in the hands of the natives. Th
have a guild that is all powerful. Whatever that guild says is law. If t
guild says "sell at such a price," woe betide the one who disobeys th
order. Should a foreigner undertake to sell oil, he would soon be forced
terms, *i. e.*, forced to give it up. I can give instances of their power that ha
come to my own attention. To show how fertile they are in resources,
mention a case that occurred last summer. An American house here boug
a large quantity of oil (Devoe's). A place was set apart away from ar
dwellings, in accordance with local regulations, for storage. The lik
officials were satisfied, although really, the oil having paid import dut
they had nothing to do with it until it was about going into the interio
when these officials would exact another duty, or likin. When the oil ha
all been stored, suddenly they turned round and demanded that it shou
be stored somewhere else, claiming that it was too far from the likin offic
The firm referred to had an empty godown (storehouse) in the settleme
back of the likin office and alongside of the native bank. When the oil w
nicely stored in this godown (under the direction of the likin office), whi
was built entirely of stone, separated from all other buildings by an alle
way, had no windows and only one door, the bank insisted that the
should be taken away, as it was dangerous. At this stage of the case I w
appealed to. I at once suspected the oil guild, and upon investigation
learned that the guild, alarmed at the success of the American, instigat
the likin office to order the oil put somewhere else, they, of course, havi
seen that it could be easily shipped upcountry from where it was stored
first on the banks of a river. The place it was removed to was difficult of
cess, and off the line of native trade. The guild expected that the Americ
would "give in," but he quietly moved to where they wanted him to. Th
was too much for them; therefore, they got the bank (Chinese) to fig
against the American, but I would not listen to a change, and they, seei
they had been caught, let the matter drop. These changes had cost t
merchant 4 cents on every case, and his profits were thus reduced to onl
cent or so a case; another change and he would have lost on the deal.

I mention this to show under what embarrassment foreigners do busin
in an "out port" of China. The early arrivals in China did business throu
the Co-hongs of Canton; but that was stopped by treaty, and the treati
stipulated that foreigners would be allowed to carry on business at any
the ports. The guilds were not reckoned with. To-day no foreigner wou
dare to antagonize a guild if he hopes to succeed in China. The likin
ficials and the guilds direct the whole trade of China. If a guild wish
to raise money for charities—for sufferers by floods, for instance—they go
the foreign merchant in the same line of business. If the piece-goods gui
wishes to raise money for flood sufferers, they send to the foreign piece-goo
importers, and every one of them subscribes a large sum.

To-day the kerosene oil is in the hands of the Chinese about as soon
it lands, and the whole trade is controlled from one center.

The Chinese, while they go to the best market as a rule, are to some extent influenced by appearances. The British influence in China is far and away above all others; their flag is oftener seen than the Chinese; nearly everything is in their hands. Their greatest rival for the China trade is the United States, and they will let no opportunity pass to decrease our business; but, in spite of these efforts, our cotton and oil trade is steadily increasing. English houses have pushed the Russian oil, English houses have introduced the Inca oil (Peruvian), and now it is an English house that is building tanks in Shanghai for the reception of the oil that is to come from Batoum in tank steamers. Already a tank steamer has been launched at Hartlepool expressly for the oil trade of the East.

What will be the effect of the new regulation allowing tank steamers with kerosene to pass through the Suez and land their cargoes in tanks in Shanghai? The North China Daily News of January 27 last had an article that deserves attention from our people. The prognostications contained therein are about to be fulfilled to a certain extent. After July 1 tank steamers will be permitted to pass the Suez.

The remarks about tin will stand correction after reading Mr. Ayers's report upon the production of that article in the United States.

The remarks made by the commissioner of customs at Shanghai in his last annual report seem about to be realized—

> Kerosene, if its use grows with its import, must be employed to an extent at least 50 per cent greater than it was even a year ago, and we have every prospect of an even greater consumption when, as seems probable, tank steamers bring it here at a reduction of 30 per cent on present prices.

JOHN FOWLER,
Consul.

UNITED STATES CONSULATE,
Ningpo, June 14, 1892.

CLIPPINGS FROM SHANGHAI NEWSPAPERS.

[Inclosure in Consul Fowler's report.]

NORTH CHINA DAILY NEWS, JANUARY 27, 1892.

The Liverpool Journal of Commerce of the 9th of December has a long article on the petroleum trade, pointing out that there must soon be additions to the present two solitary centers of supply—Batoum and Philadelphia. All eastern Asia, it says, will before long be supplied from Vancouver, the shipping port for the enormous, but practically unworked, oil fields of northwest Canada. Callao will supply New Zealand and Australia from the Peru fields. Philadelphia will supply its home market and will compete with Batoum for Europe, but Batoum will supply all western Asia and eastern Africa. Philadelphia feels keenly already the competition of Batoum, whose steamers deliver their cargoes at the ports of India and China before the sailers from Philadelphia have got round the Cape of Good Hope. Batoum would beat its rival out of the field but for Russia's high tariff and depreciated currency. For eastern markets the oil must be packed in tins, and these tins have to come from Swansea, whereby Russia is seriously handicapped, for the oil itself only costs 1½*d.* to 2*d.* a gallon free on board at Batoum. What is wanted is that Batoum shall ship its oil in tank steamers, "and," says the Journal, "we believe we are correct in stating that steps are bein taken to erect storage tanks at Bombay, Calcutta, Singapore, Shanghai, etc. We have alway consistently urged that the only way in which to transport petroleum, either by rail or by se is by means of locomotive tanks, *i. e.*, bulk steamers and tank cars. Then comes the ques tion of retail distribution, and here we see that Philadelphia is not in it. At Singapore w have in the mines of Salangore and Perak supplies of tin which, with our own natural deposit enable us to supply the world. McKinley never did a better service to the British petroleu trade than to pass his tariff act, which, we trust, may never be repealed. We may thus stat the future history of the eastern petroleum trade—British tankers will convey Russian oil t the eastern ports; British factories at Singapore will turn out tin cases, lamps, etc., made b skilled Chinese labor, and put them all over the eastern markets at a price and of a qualit which America can not hope to touch. We shall, in conjunction with Russia, simply swam all Asia with Russian oil transported in British bottoms and retailed and burnt in Britis manufactures. If our local petroleum merchants would only show a little enterprise and g into the question, they would find the Indian and Chinese markets at their feet." The Jou nal goes on to assert its belief, which is fortified by the fact that underwriters charge a lowe rate of premium on oil in bulk than in cases, that a "tanker" laden in bulk is safer than steamer laden with oil in cases, "because it is most difficult and nearly impossible to set fi to a tank of oil, but a case or cases need only to have a gallon of oil capsized over them t ignite and blaze furiously." "There is nothing," it concludes, "to close the Suez Can against tank steamers. We understand that the Government has appointed a committee t investigate the matter; but really there is no need for investigation, and all the committees i the world will not elucidate anything fresh. We hope to see the oil-in-bulk trade throug the canal attain very large dimensions, and so far we can see no valid reason why it shoul not run the trade from Philadelphia out of the eastern market altogether."

TEMPERANCE UNION, MAY 5, 1892.

A comparative test of the brilliancy and utility of oil from the Langkat oil springs i Sumatra, as compared with American and Russian oil, was made at Penang on the 9t instant. The Penang Gazette, giving the results, says: "Three tins were opened at about p. m., containing the three oils of Devoe, Batoum, and Langkat, respectively, and three nev lamps, marked for identification, were filled with the respective oils. The result of the firs test was decidedly in favor of the Langkat oil as regards illuminating power, Devoe comin second, and Batoum last. It was noticed that while Batoum started best, the light soon fell while Devoe remained about stationary; but Langkat increased in brilliancy, and had to b turned down twice. After about an hour and a half the lamps were again tested, whe Batoum was found to present a poor spectacle comparatively, having to be advanced halfwa up the marked distance on the table, in order to compete with Langkat, while Devoe, thoug not quite so bad, had still to make a considerable advance from zero. It was again observe that the Langkat oil maintained its brilliancy, while Devoe's had fallen and the Batoum falle terribly. It was apparent that the Langkat oil was composed almost entirely of light oils while the others had a more or less large percentage of heavy oils, which militates agains maintenance of their brilliancy, which is a common experience. When the lamps came t be put out, it was further noticed that, while there was smoke with the Devoe and Batoum oils, there was none at all with the Langkat, and, on the wicks being examined, it wa observed that the Langkat lamp wick was burnt scarcely at all and fully three-fourths les than those of the Devoe and Batoum lamps. The unanimous verdict of the company wa that the Langkat was the superior oil, both as regards brilliancy, smoke, and effect on th wick. The Langkat oil has two other pleasant features. It is perfectly clear, almost white and has hardly any smell. With greater brilliancy, permanence of brilliancy, little or n smoke, the slightest possible deposit of carbon on the wick, clear water color, and scarcely any smell, the Langkat oil has, in our opinion, most distinctly a most prosperous featur before it."

TEMPERANCE UNION, APRIL 28, 1892.

In the opinion of a correspondent of the Deli Courant the petroleum found in Langkat in wells, which a company is actively engaged in working there, comes fairly up to the mark. The oil is said, after careful manipulation, to be clear in color. It gives hardly any smell and yields a bright flame. One well alone is estimated to turn out 700 cases of oil a day. The petroleum first drawn from the wells proved rather impure, but subsequent supplies, carefully treated, are reported to be of excellent quality.

Says the New York Maritime Register: "Who shall supply light to the East, Russia or the United States? It is a race between the two countries, with advantages fairly well divided. Both countries are rich in oil fields of great productiveness, with the advantage of proximity to the East in favor of Russia and superiority in quality of oil in favor of the United States. Asia depends on both for light at night, and the question yet remains as to which will furnish the largest supply. The list of petroleum shipments from the United States to ports in Asia during the year 1891, compiled by Messrs. Vernon H. Brown & Co., of New York, shows that there was a material decrease in the shipments of 1891 from those of 1890. This decrease of 3,294,957 cases was divided among all the ports except Shanghai, Hongkong, and Nagasaki, the shipments to which showed a slight increase. Out of 205 vessels engaged in the carriage of this petroleum 34 were steamers—1 Norwegian and 33 British. The British, as usual, took the lion's share of shipments in 115 vessels, or over half of the total. American vessels engaged in the trade numbered only 55. This is not a good showing, especially as our shipping has increased a little during the past year."

NEW YORK MARITIME REGISTER, DECEMBER 12, 1891.

Probably no great trade was ever so completely revolutionized in so short a time as that of oil transportation on the sea. Even the change in oil transportation on land, from railroad and canal to pipe line, is no parallel, for that took many years; but it took only four or five years to wipe an enormous fleet of sailing vessels out of existence, so far as the carrying of petroleum was concerned, and substitute another fleet of large, fast, and powerful steamships.

JAPAN MAIL, OF YOKOHAMA, MAY 21, 1892.

Buyers of kerosene have only taken sufficient to fill immediate requirements, but for the lots bought full prices have been paid. Another cargo of Russian has come in, and for this brand quotations, though unaltered, are slightly weakened. The arrangement having been concluded by which tank steamers will be permitted to pass through the Suez Canal after the 1st of July, there is no doubt that Batoum oil will be placed upon this market shortly at such a price as will almost exclude the product of the United States. Russian oil is in good repute in the interior, and the absence of the charges for tinning and casing must make an immense difference in the laid-down cost of kerosene in the eastern markets.

SILK INDUSTRY OF ZURICH IN 1891.

REPORT BY CONSUL CATLIN.

The annual report of the Kaufmännische Gesellschaft (Mercantile Association) of Zurich for 1891, just published, contains a full and interesting report upon the silk manufacturing interests of this vicinity.

SILK GOODS.

In the matter of silk goods, the report states that the year's business may be classified as "middling," with, however, certain exceptions in favor of those manufacturers who took fixed orders in the spring, instead of taking the chances of selling from their stocks on hand. Those who took the latte course could only dispose of their goods at a reduction of from 10 to 15 pe cent on the prices which subsequently, in the fall season, were readily pai on orders. Of the above percentage of reduction, 5 to 8 per cent is ascribable to the fall in raw silk, the remainder to the general falling off in sellin prices, which affected nearly all of the Zurich articles, but especially satin merveilleux, failles françaises, satins, radzimirs, and persans noir. At th close of the spring season there were great quantities of black failles françaises and persans left on hand vainly seeking purchasers.

The only articles which went well were black and colored bengaline mixed with wool, and façonnés, in large geometrical designs, lovers' knot etc. In fact, the competition in bengalines may be considered the cause o the French failles, usually so popular, having been pushed into the background, and the report says it is deeply to be regretted that the Zurich fabric in this line have not met with even greater success. The secret lies in the fac that the wool had then to be bought in France at high prices, and that ther were at that time in Switzerland no dyers who could dye the wool whe purchased and no establishments to finish the goods properly when made These disadvantages have now, it is true, been overcome, but they had thei effect on the selling power of the article referred to. With façonnés th case was better, inasmuch as for their manufacture and finishing there exis in Switzerland some well-equipped establishments, capable of doing goo work, and against which, in point of price, even Lyons can not compete Owing to this fact, façonnés scored the greatest triumph for the Swiss sil industry in 1891.

Yet much greater success is possible. "If," says the report, "we wer to-day in position to manufacture Bengaline façonnés, for instance, wit small broché effects, by machinery, we should find everywhere an extremel good market and drive our Lyons competitors everywhere out of the field.'

Another Zurich article which found favor in 1891 was half-silk linin which met with ready and paying sales during the entire year, and especiall to American buyers. Black taffetas, too, which for some years past ha been weak, came again in rather heavy demand for the manufacture of under skirts, a fact which gave fresh impetus to hand weaving, inasmuch as th article in question is always superior when hand woven to that made o power looms. Surah glaçé and taffetas glaçé were also much sought for But surah uni, both in black and colors, constituted unquestionably durin the entire year the bulk of Zurich's mechanical product in silks.

The report continues:

> American buyers who came to Zurich, and they were not few, told wonderful stories o the progress of American manufacture on the one hand and of the orders for façonnés and ben galines they had given in Lyons on the other, but seemed to have had few orders left over fo Zurich, with the exception of some damassés, cravat stuffs, and failles françaises. In stuff dyed in the piece, which they import in quantities from Lyons, we have but two firms tha can do anything; on the other hand, they gave heavy orders in mixed silk and cotton lining Nevertheless, there is reason to fear that in this line of goods as well the Zurich fabric mus gradually give way before the American.

Nothing, however, contributed more during 1891 to the meager financial showing in Zurich's silk industry than the disfavor of the prevailing fashions, which decreed that silks should no longer be worn on the street or in daily social intercourse, but at most only in the theaters, at concerts, etc.

The report says:

> Whoever is seen in the street wearing a silk dress does not belong to the elect, and is smiled upon with pity. We might find some comfort in this antisilk caprice among the upper ten thousand if at least the servant girls were possessed with a mania for wearing silk dresses, as was the case in the United States thirty years ago; but even this solace is denied us, for the servants follow their mistresses' example, and, like them, dress in woolens and cottons. We can hope for no improvement in our industry until the unfortunate mania prevalent among our ladies of dressing in men's styles, of strutting about in men's shirt bosoms, with men's cuffs and men's standing collars, with a tight-fitting woolen jacket made by a man tailor worn over the shirt bosom, shall have been broken up. Under existing fashions we are condemned to manufacture only linings, underskirts, and trimmings (instead of dress goods), the consumption of which, it is true, is enormous, but which involves a demand for always lighter, heavier-charged, and less substantial goods. With this latter evil the whole world's silk industry is ailing, and to this is to be ascribed the fact that silk prices can not recover, notwithstanding that they are lower to-day than they were at the time of the memorable revolutionary year of 1848.

Unfortunately, nothing at the commencement of the present year justified hope for any immediate improvement in Zurich silk industrial interests in this regard. Surah couleur in *uni* and *glacé*, partly for use as linings and partly for ladies' cravats, will continue to play the chief role in sales. To these may be added black surahs and merveilleux, taffetas, light persans, and light-colored failles for foundation silk. The articles which from five to ten years ago constituted the bulk of hand-loom production, namely black persans and black colored faille françaises for dress purposes, at from 4 to 5.50 francs per meter, are dying out, and manufacturers who think they can keep on with them can make up their minds to heavy losses.

In view of this fact, the question unavoidably arises, what is to become of the Lyons looms, which for years have been the pride of large manufacturers here and the principal source of their revenues, while at the same time constituting for the more skilled hand weavers their best means of earning a subsistence? Shall they be broken to pieces; shall wages be reduced so as to drive fashion by force, through still lower prices, into other channels; or, finally, shall there be a return to the production of old-fashioned goods—taffetas (*glacé, rayé, et quadrillé*)? The latter is certainly a pitiable movement backwards, but it at all events leaves the way open, on the one hand, to insure the hand workers a chance of earning a modest pittance, and, on the other hand, to be in position to utilize a possible return to better times later for heavy silk dress goods. Meantime the outlook for the Zurich silk industry is not cheering. The French market, owing to the application of the minimum tariff, will be to a considerable extent lost, especially if, as appearances indicate, the example of some Swiss manufacturers in establishing themselves on French soil finds imitation. Germany, when the exorbitant entry duty of 600 marks on silk goods shall have been extended for twelve

years by the new German-Swiss treaty, will make every possible endeavor
manufacture Swiss articles herself. North America, whose silk industry
developing enormously, will naturally recede in importance as an outlet
Swiss silks; and, as far as Austria, Italy, and Spain are concerned, the co
mercial treaties between Switzerland and those countries possess for the Z
rich silk industry only a platonic value. On the other hand, there are hop
of winning territory away from the French in Belgium and Holland; an
as soon as there is an end to the financial chaos in Brazil, Chile, and t
Argentine Republic, large demands may also be looked for from those qu
ters. These are all, however, uncertain dependencies at best. But Englan
fortunately, is a first-class customer, and the Swiss silk men can not on
count upon her remaining so, but even upon her giving them increased
ders, to the detriment of French manufacturers.

RAW SILK.

The total amount of raw silk brought to Zurich during 1891 was 1,17
357 kilograms, and from the following sources, viz:

Countries.	Organzine.	Tram.	Grege.	Total
	Kilograms.	*Kilograms.*	*Kilograms.*	*Kilogr*
France	1,447	111	82	1
Italy	324,838	113,838	45,863	484
China	21,228	131,304	214,227	366
Tussah	1,988	3,212	9,152	14
Japan	9,359	151,662	147,904	308
Other	1,047	1,695	400	3
Total	359,907	402,822	417,628	1,179

Of this total amount, 912,835 kilograms were conditioned and deliver
over 63 per cent going to Zurich factories, about 27 per cent to dealers a
twisters, and the remainder being shipped elsewhere.

SILK-TWISTING.

The continued fall in raw-silk prices seriously affected this branch d
ing 1891. As regards tram-twisting, it may be stated that it was much
jured by the existing feeling of discouragement and the small confiden
felt in the firmness of prices. The unsettled condition of the commerc
treaties with Germany, Austria, Italy, and France also weighed upon busin
and prevented sales, though, it is true, the supply left over at the end of t
year was not superfluously large. Nevertheless, the wrought silks lie heav
on producers' hands, the trade through middlemen has almost disappeare
and speculation has stopped.

With sewing silk it was no better. The causes of this depression a
easily found, namely, the fall in silver, the heavy silk crop, and, in general, t
bad state of the world's market, upon which the crises in South America, t
political anxieties in Europe, and the uncertainty of customs matters ex
an evil influence. And, finally, in this line as well, fashion has reduced t

consumption in a whole series of specialties, as, for instance, glove-embroidery silk, fringes, laces, braid silks, etc. By the new French treaty Switzerland loses entirely her market in France in this class of silk products. Nor does the reduction made in the new German treaty (from 1.50 francs to 1.40 francs) help the matter greatly. "Under these circumstances," says the report, "it is quite possible that silk-twisting will be discontinued in Switzerland."

SILK-DYEING.

The number of silk-dyeing establishments in the canton of Zurich remained the same as during the year previous, and all of them were kept fully busy during the entire year. Black was dyed somewhat less than last year, while dyeing in colors increased considerably. In all color dyeing, in fact, a feverish activity prevailed toward the close of the year, owing to pressing orders which had to be delivered in France before February 1 of the present year. Both in black and in colors heavier chargings were constantly called for and delivered. The dyeing process became, consequently, more complicated, but at the same time more interesting, requiring more rooms and increased and better labor. The number of persons employed in Zurich dyeing establishments has increased considerably, and wages have gone up somewhat.

SILK-FINISHING.

The finishing establishments (*appreturen*) were also pretty regularly employed during 1891. In cachenez alone, toward the close of the year, was there any falling off observable. Among the improvements introduced during the year may be mentioned machinery for handling bengaline with woolen threads, and also for rubbing and handling silk and half-silk umbrella stuffs. Arrangements are also being made for the finishing of gloria, Austria, etc., while another firm is stated to have ordered the machinery for moire antique. Hitherto Zurich has been dependent upon foreign establishments for finishing both these articles.

SILK BOLTING CLOTH.

In silk gauze business last year was less lively. The demand for work was somewhat increased by the embroidery crisis, but, owing to a diminished consumption, fewer looms were in operation than in either 1889 or 1890. Weavers' wages remained, however, unchanged, and, in addition, the manufacturers agreed, in cases where workmen were rendered unable to work by reason of illness, to pay them a certain sum per day for a certain period, and also, in case of a needy weaver's death, to pay a certain sum to those dependent on him.

GEORGE L. CATLIN,
Consul.

UNITED STATES CONSULATE,
Zurich, June 16, 1892.

COTTON MANUFACTURES IN CHINA

REPORT BY CONSUL GRACEY, OF FUCHAU.

AMERICAN CLOTH.

I have the honor to present the following additional report concerni American cotton goods in China and a new native industry in the ma facture of cotton cloth.

The annual reports of the commissioners of customs at Chinese po show that the import of American cotton cloth in China for the year 18 was the largest on record. The returns are as follows:

Description.	1890.	1891.
	Pieces.	*Piece*
Sheetings	1,201,791	2,008
Drills	597,903	861

The import of drills at the port of Fuchau was 2,143 pieces during 18 and 3,038 pieces in 1891, being an increase of 895 pieces.

INDIAN YARN.

The tables show a still greater increase in the importation of India cot yarn, the total of that article for all China being 1,138,000 piculs,* valu at 20,900,000 Haikwan taels, or $25,080,000 in United States money. T sum exceeds the aggregate value of the year's importations of gray and wh sheetings, T cloths, and drills. There has been a marvelous increase in import of this article. In 1882 the demand for cotton yarns was o 185,000 piculs. Last year the one province of Quang-Tong, in which C ton is situated, received 482,000 piculs. At this port the increase in th goods was as follows:

Description.	1890.	189
	Piculs.	*Picu*
Indian yarn	339	
English yarn	49	

The Indian yarn is known as 16s, and comes in bales containing pounds net weight, and is delivered here at $65 in Mexican or $47.45 American currency. At this price there seems to be no room for compe tion by American yarns.

CHINESE COTTON INDUSTRY.

This enormous increase of import in yarn is largely due to the fact t a great impetus has lately been given to the manufacture of a coarse cloth natives in many parts of the Empire.

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*1 picul = 133⅓ pounds avoirdupois.

In this province the viceroy, Pien, has greatly encouraged certain capitalists who were manufacturing looms for native use and putting forth great efforts to introduce them in the homes of the people, as well as starting what they call cotton factories.

The viceroy made a report to the Emperor in regard to this new industry, and received instructions to release it from the burdensome likin tax which cripples every industry of China. His petition was as follows:

> Fo-Kien is a maritime province, and by no means fertile. The mass of the population find it difficult to obtain means of subsistence, being in an unusual state of poverty. The method of planting cotton and of weaving they have not taken pains to study. They are entirely dependent upon the importation of cotton from Kiang-See and Che-Kiang. Millions of dollars are expended annually for the gradual improvement of the condition of the people of Fo-Kien. Your servant therefore established a cotton mill in Fuchau after consultation with the native gentry. Apprentices were engaged, and weaving instruments were purchased. These apprentices were paid wages and were given three months' time within which to acquire thorough knowledge of weaving. They were then allowed to take with them a weaving machine and do the weaving at home. Some months afterward it was found that each apprentice could manufacture more than 20 pieces of cloth every month. Your servant appropriated a certain amount of public funds for the expense of the mills, and the gentry also assisted in raising capital by selling shares.
>
> It is now two years since its establishment and very many in this city and other places have tried to work on the same principle, so that now over 4,000,000 pieces are being manufactured annually in this city alone. The poor people therefore have occupation and means of support. The industry thus gradually extended, it is believed, will become more and more prosperous.
>
> Last year the gentry represented to me that the native cotton cloth was made of imported cotton yarn, upon which import duty was charged; besides this, likin was also levied on the manufactured cloth. By paying this double duty the price ran high, and the sales naturally became slow, as the goods were not fine. The gentry then requested that the cloth might be exempt from the likin duty. In compliance with my instructions, the commissioners and taotais of the likin bureau reported to me after deliberation that the cloth manufactured in the Government establishments, not amounting to much, might be exempt from payment of likin for a time, and the sum payable by private establishments might be reduced to 60 per cent of the former charges, etc. It is now nearly a year since, and it has been proved that the manufacture of the Government establishment pays handsomely, while but little profit accrues to private establishments. It seems we can not but think of reducing the likin taxes.

He then quotes an imperial edict sanctioning the proposal of the governor of Quang-See in regard to export duty on silk goods, and continues:

> Your servant, therefore, wishes to know whether Your Majesty will graciously permit the cotton yarn imported for native manufactories to be exempt from likin, and that export duty be reduced to 40 per cent of the amount formerly charged, as has been done for the governor and people of Quang-See in the case of exported silk goods.

The Emperor issued an edict granting this request, and the manufacture and sale of these goods have greatly increased.

I have visited and inspected some of these so-called Government mills. I found the largest to be carried on in a large, ordinary Chinese house on the ground floor. The plant consisted of eighteen looms. These are made

of wood and are heavy and rough in workmanship. I inclose a drawing
one of the looms, with a little-footed woman at work, and also a sample of th
cloth. I found the operatives to be young men under 20, old men over 5
and women of all ages. They earn from $4 to $6 per month, which is ver
good wages for native labor in this country. The cloth, as you will see,
rather coarse, but closely woven, and is such as is used very generally b
the coolie class. It is 13 inches wide, and each piece measures a littl
over 7 English yards, and can be bought for 38 or 40 cents in the currenc
of the country, which equals about 28 and 30 cents in American money,
from 4 to 4½ cents per yard.

Very many of these looms are being made by a company of the gentr
who lease or sell them to private parties for use in their own homes. The
can be purchased for about $4 in Mexican or $2.90 in American mone
The shuttle is thrown by hand and the treadle worked by the feet. The
could be improved very easily so as to double the quantity of cloth produced
but the great object in China is to furnish employment to as many perso
as possible and not to cheapen products. A mill having steam power an
running scores of looms would not be allowed introduction in this city
province. They do not want, and will not have, any labor-saving machine
As an evidence of this, I may state that in all the city of Fuchau, with i
million of inhabitants, there is not a single pump or windlass used in gettin
water from their wells, but all water is drawn up by a small pail at the en
of a rope, just as was done in the days of Abraham, and if a pump was force
upon them it would not be used.

I am continually in receipt of circulars and letters from manufacture
of simple and useful things at home asking if there is any market for suc
articles in this country, and am sorry that I am forced to reply that there
not. Although nearly all the people use flint and steel in kindling fire
some matches of German and Japanese manufacture are being sold, but n
one person in a thousand will resort to their use.

SAMUEL L. GRACEY,
Consul.

UNITED STATES CONSULATE,
Fuchau, May 25, 1892.

COMMERCE AND NAVIGATION AT GIBRALTAR.

REPORT BY CONSUL SPRAGUE.

The condition of this market with regard to produce generally importe
from the United States has not experienced much change since I last ha
the honor of addressing the Department on the subject. The tobacco trad
remains at this moment somewhat dormant, while quite an active busine
is being kept up in flour, which continues to be imported in increased quan
tities direct from New York by British and Italian steamships. But fo
these supplies the stocks of flour would be greatly reduced, as the import

CONSULAR R

tions from other quarters, such as England, France, and Algeria, have for some time past been on a very moderate scale.

It is now generally reported that the Russian ports in the Black Sea have just been reopened for the exportation of wheat and other cereals, with the exception of rye. If such be the case, we may expect to see some change in the leading markets of Europe for the sale of flour. In the meantime considerable hard wheat is now arriving at this port direct from British India by steamships, imported on joint account between speculators in this market and Spanish traders residing in the neighboring Spanish towns, where the greatest portion of these foreign importations of wheat is now finding its way to meet the actual wants of the Spanish millers, who find it most to their advantage to mix this Indian wheat with their own domestic kinds, especially at this moment, when their stocks of the latter are considerably reduced and the prospects for fair crops during the present harvest being unpromising.

The gradual decline in steam navigation throughout the Mediterranean and the Levant ever since the Black Sea ports have been closed to the exportation of cereals has had the corresponding effect of diminishing the number of steamships entering this port since the commencement of the present year, besides limiting its coal business considerably. This decline in the coal trade, which forms the principal commerce of this port, is severely felt and causes considerable distress among the working and poorer classes, while the coal merchants themselves can now hardly make the business pay; in fact, the civil population of Gibraltar is at this moment being considerably tried by various local municipal ordinances and by-laws relating principally to sanitary affairs, causing increased expenses to the proprietors holding real estate here, and in such an aggravated form as to have aroused the attention of the imperial Government upon the subject.

The matter has lately been discussed in the British Parliament, and a blue book issued containing some parts of the leading correspondence, together with the result of an interview had between a Gibraltar deputation, sent to London at the expense of most of the civil population of Gibraltar, and the secretary for the colonies.

What the issue of this unsatisfactory state of affairs may be the future alone will disclose; it must, however, be a source of some anxiety to all concerned, including the governor of this fortress, whose position under existing circumstances can scarcely be envied.

There is every probability of the Algeciras Railway, which is approaching completion toward Bobadilla in connection with the Madrid and Malaga Railroad, being opened throughout for public traffic by November next, thus opening a new and direct overland highway to the Continent and offering an advantage which travelers and tourists will no doubt very soon fully enjoy and appreciate.

HORATIO J. SPRAGUE,
Consul.

UNITED STATES CONSULATE,
Gibraltar, July 2, 1892.

TUSSAH SILK.

REPORT BY CONSUL-GENERAL MERRILL, OF CALCUTTA.

The tussah silkworm, or *Antheræa mylitta*, is variable in appeara feeds on many different plants, and is found in a wild state in jungle in all parts of India up to an elevation of 4,000 or 5,000 feet.

The cocoons always have a market price, and are collected by ju tribes wherever sufficient quantities can be found to be worth carriage, the insect is regularly cultivated on the Central Indian plateau for the duction of silk.

The moths emerge from their cocoons in the beginning of the (June), mate, and lay eggs. From these eggs emerge caterpillars, wh when full grown, spin cocoons producing moths about August. T moths lay eggs, which furnish the worms of the second generation, these worms spin at the end of the rains (September), yielding the coc which in their natural state remain on the trees throughout the winter produce moths in the beginning of the following rains (June).

Each cocoon is attached to the food plant by a silken stem of sing strength and neatness, is hard and compact in structure, and contai large amount of coarse, strong, buff-colored silk that might almost be ca brilliant. The cocoons can be reeled, but have first to be subjected to s powerful solvent like caustic potash to separate the threads.

When proper attention is paid to the rearing of the tussah silkwo and under favorable circumstances, it is said that about eighty worms be raised from the eggs of one female, and that about 44 per cent of cocoons produce female moths.

The caterpillars molt five times, at intervals of from five to eight d When first hatched they weigh but one-fifth of a grain and are abou quarter of an inch long, but at the end of their larval existence, which tends from forty to forty-five days, they are sometimes 7 inches long inch in diameter, and weigh about 370 grains.

At this period they begin to spin their cocoons, from which the m soon emerge to lay the eggs, and from these at the end of the rains main crop of cocoons is raised.

The men engaged in the silk industry carefully watch over and pro the worms, and while rearing is going on live with great cleanliness and denial, abstaining with ascetic rigor from the gratification of their appet and adhering very strictly to certain ceremonial observances.

The business is a very precarious one, much depending on favor weather, any stoppage of the rain being most injurious to the worms, pecially if it occurs when molting is going on.

In attempts made in the Indian museum in Calcutta to raise tussah wo in captivity in perforated zinc breeding cages it was found that, though eggs hatched readily, producing vast numbers of apparently healthy worms, the worms invariably died, although supplied with plenty of fresh food. At length daily watering of the worms with a watering pot was tried, in imitation of the heavy rain to which they are exposed in their native jungles, and it was found that when regularly watered they could be easily raised through all their stages.

The insects are subject to the attacks of enemies of various kinds. The moths are said to be eaten by bats, rats, and ants while they are hanging to the cocoons. It is asserted that the caterpillars are eaten by snakes, rats, toads, ants, and also by hemipteral insects. They also perish in large numbers from the attacks of *Ichneumonidæ* and *Tachinæ*, which are parasitic on them; while in the Central Provinces, it is stated, they are particularly liable to disease, it being no uncommon occurrence for the whole crop of worms to die off, leaving the owners without any return whatever for their time and labor.

The chrysalides inside the cocoons intended for reeling are generally killed by steaming, and the cement of the cocoon is softened in some alkaline solution, such as that obtained by mixing the ashes of the dried seed pods of the pulse *Phaseolus radiatus* in boiling water.

The native mode of reeling the thread of silk from the cocoon is very simple, reminding one of a boy winding his kite string on a stick. In some instances the silk is reeled from the cocoon round the naked kneecap of the reeler.

Not much silk is woven by the natives, and the quality of what is manufactured is inferior.

Manchester goods are often exhibited and sold here as articles made in this country.

The atlas moth (*Attacus atlas*), though found in the Madras Presidency, is not abundant, nor are the cocoons thereof collected. The cocoons are of a very dark brown color and are invariably hidden by leaves, which the larva gums around itself when it begins to spin. When about to undertake this final work, it invariably commences by drawing together the edges of the largest leaves it can find, attaching them to one another by silken threads. Within this leafy screen the cocoon is rapidly perfected, and if afterwards removed from this environment it will be found that it has exactly taken the shape of the leaves.

This meager and unsatisfactory report has been delayed month after month that it might embody important information promised again and again. Should this be received, it will be forwarded, with samples of cocoons and silk, which also have been proffered, but have never been supplied.

SAMUEL MERRILL,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Calcutta, June 13, 1892.

WAGES IN GERMANY.

REPORT BY CONSUL WAMER, OF COLOGNE.

The bureau of states attorneyship of the various trade unions of German has just compiled some very interesting statistics on the wages earned throug out Germany during the year 1891. The statistics were collected by th various trade unions at the request of said bureau, and they embrace th replies from 906 cities and 924 unions. The figures show that wages hav increased in only 7 cities, in 229 they have declined, and in 670 the have remained stationary. In 216 of the 906 cities want of employme existed for a longer or shorter period. The machine industry, represen ing 400 local unions, with 20,000 members, shows that there were only tw places in which the wages have risen; in 72 they have declined, and in 23 they have remained stationary, while food products have been dearer.

Aix la Chapelle, Berlin, Breslau, Buckau, Dortmund, Dusseldorf, Dui burg, Erfurt, Essen, Heilsbronn, Leipsic, Magdeburg, Nuremberg, Oberha sen, and Steele, the centers of the machine industry, show a decrease in th wages. Only 211 places out of 306 cities showed full employment, while i 30 places almost complete stoppage of work existed.

A Berlin machine worker writes:

> A family of five persons requires per week: For food articles, $3.61⅜;* for house re $1.32¼; for contribution to sick and invalid fund, 40.5 cents; for taxes, 11.8 cents; for new papers, etc., 8.4 cents; for clothing, 96.4 cents; total, $6.50⅜, or $338.16 per year. By co tinued work such a workman earns during the year $250.60.

A Berlin bricklayer writes:

> A bricklayer or carpenter earns per year, less the frosty and rainy days, $253. His fami of seven persons needs yearly for food articles $200.48; for rent, $65.06; taxes and cont butions, $11.80; clothing, etc., $24.09; total, $301.45. The deficiency must be made from what the wife can earn by sewing, etc.

A bricklayer in Erlanger writes:

> I keep an exact account of wages earned and cost of living. My family consists of m self, my wife, and five children of 3, 5, 7, 15, and 18 years of age. In 1891 I earned as fi workman in a stone quarry $232.53 (ordinary workmen earn from $180.72 to $187.95). cost of living for the year was as follows: For food articles, $238.31; clothing, $56.87; fir $11.80; shoes, $29.39; beer, $27.95; rent, $28.92; total, $393.25. The deficiency $160.72 had to be made up by the amount earned by my wife and children.

In the eastern and western parts of Germany, as well as in the norther and southern parts, the workman alone can not earn sufficient to support h family. It can be reckoned as requiring, on an average, for a family of fo persons, $3.37 for food articles per week, and from $3.61 to $3.85 for rent f a tolerably good house per month. This makes for food articles and f house rent a minimum of $216.86, and the earnings can be taken at a max mum of $162.65.

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* Reckoned from the mark at the rate of 4.15 marks to the dollar.

A machine worker in Essen writes:

A family of four persons earns yearly $270.60 and expends for house rent $39.75; for food articles, $192.77; clothing, etc., $48.19; for taxes, $6.50; for insurance contribution, $18.89.

This shows a deficiency of $30.70.

WM. D. WAMER,
Consul.

UNITED STATES CONSULATE,
Cologne, July 23, 1892.

THE TRANSSIBERIAN RAILWAY.

REPORT BY SECRETARY OF LEGATION WURTS, OF ST. PETERSBURG.

I have the honor to transmit a copy and translation of an article from the Journal de St. Petersburg of the 5–17th instant relating to the inauguration of the work on the section of the Transsiberian Railway between Cheliabinsk and Omsk, which may be of interest to the Department.

GEORGE W. WURTS,
Secretary of Legation.

UNITED STATES LEGATION,
St. Petersburg, June 21, 1892.

TRANSSIBERIAN RAILWAY.

[Inclosure in Mr. Wurts's report.—Translation.]

The Messager Officiel publishes the decision of the council of ministers, bearing the imperial sanction dated the 8–20th of May, ordering the inauguration during the current year of the works, to be executed by the State, on the section of the great transsiberian line between Cheliabinsk and Omsk. All the organs of the press warmly welcome this decision. The New Times (Novae Vremia) devotes two articles to it.

This section of the Siberian railway, passing by Koorgan, Petropaulovsk, and Omsk, will have a length of 477 versts; and the expense of construction, including the rolling stock and two metal bridges on the Tobol and Ischim, is estimated at 22,333,000 rubles, which thus makes less than 30,000 rubles per verst. Notwithstanding the economy with which this line will be built, it is nevertheless decided that the distance between stations shall not exceed 50 versts. The trains will travel at the rate of 20 versts an hour.

Thanks to this cheapness of construction, the State will have little to advance, and that only during the first period. As to the expense of running, it will soon be covered by the receipts of the line. The New Times is specially delighted that the construction of the line will be by the Government alone, thus setting aside the cupidity of speculators, Russian as well as foreign. One contemporary would like the Government to abandon the system of supplies by adjudication and to make its own purchases.

It is stated that the Government will build all the line across Siberia in the period of six years. If the achievement has to be awaited a year or two longer, the results obtained would be no less marvelous. At this moment the detailed studies of the line traced are finished to the one thousand and fiftieth verst from Cheliabinsk, and beyond the region of the future line has been sufficiently explored on an extent of 1,508 versts to the River Tom, which the roa will cross at 84 versts from Tomsk.

Next year, probably, the construction of the section from Omsk to the Tom will be begur Taking Zlatoosk as the point of departure of the transsiberian line, it will be found that the present moment 900 versts to Omsk and nearly 400 versts from Vladivostok to Grafsko are already under construction. During the summer of next year there will be work upo 750 other versts. At the same time the two extreme sections at the extremities of the lin will be open to circulation. These 1,650 versts form together only one-fourth of all the lin of the transsiberian road from Zlatoosk to Vladivostok, which from the River Tom t Grafskoe has a length of 4,500 versts (to Sretensk alone 2,500 versts).

In the success of the future railway, and that it may as soon as possible be of benefit t the whole Empire, the ministry of domain will have to bestir itself. It will be necessary t populate the approaches to the transsiberian line. This will not be very difficult, the mov ment of emigration toward these regions, as we pointed out yesterday, being irresistibl There is nothing astonishing in that when one thinks that the natural increase of the popul tion of Russia is from 1,600,000 to 2,000,000 inhabitants a year. The United States hav shown to us how things should go after the construction of an immense line of railway, th benefit to the country and to the line itself, which only in this way can count upon a loc traffic of importance, both of travelers and of merchandise.

The [Russian] Gazette of St. Petersburg, which discusses the same question, suggests, o account of the difficulty of obtaining laborers in Siberia, the use of the prison populatio which at this time leads an unproductive existence, or nearly so, on the island of Saghali In utilizing it a great service would be rendered to the country and amelioration effected i the condition of the exiles.

CANARY ORCHILLA.

REPORT BY VICE-CONSUL LALLIER, OF TENERIFFE.

I have the honor to report that, after having received information fro the seven islands about the orchilla weed, I have found that it is not plante in any of the islands, but that it grows spontaneously in all. It is, howeve mostly found on the rock in Lanzarotte, Fuerteventura, Gomera, and Ten riffe, where it is picked by poor people. Its price is about 12 cents p pound, and the exports about 60,000 pounds a year, although the expo does not reach 15,000 pounds in some years.

I will try to plant this weed; but I do not expect good results, becau it is always found on very high rocks vertically cut and never on cultivate land. The gatherers swing by ropes down the sides of the rocks.

It is exported chiefly to Bremen, and the only exporters are Ped Foronda and myself at Teneriffe and Jorge Rodriquez and Miller & Co. Grand Canary.

It is bought in a dry state and is packed in large bags to be shipped.

PHILIBERT LALLIER,
Vice-Consul.

UNITED STATES CONSULATE,
Teneriffe, May 12, 1892.

COMMERCE OF THE DANISH WEST INDIES.

REPORT BY CONSUL HORNE, OF ST. THOMAS.

This report will be brief, in view of the fact that the conditions are about the same as when my last report was written, which was full and complete and covered every matter of interest.

The Government does not keep a record of exports, but the consular records show an increase over last year of exports to the United States.

The health of the island has been remarkably good during the past year. There has not been a case of yellow fever or smallpox.

The population is decreasing. Most of those leaving the island seek a home in the United States.

Table showing the imports into St. Thomas during the year ended March 31, 1892.

Articles.	From—				
	United States.	Great Britain.	France.	Germany.	Denmark.
Cloth goods:					
Linen	$11	$4,600	$4,037	$794	$22
Cotton	8,845	95,656	9,552	3,754	54
Woolen	179	7,076	3,138	2,116	30
Silk		1,599	4,148	564	29
Mixed		72		206	
Ready-made clothes	382	5,640	6,798	595	1,429
Salted and smoked beef	2,085	4		13	36
Tongues and sausages	181	92	127	154	982
Salted and smoked pork	6,628	50			
Hams	3,119	563			351
Butter	10,585	313		2,443	5,733
Cheese	1,421	5	159	5,609	109
Lard	7,303	18			
Beans and peas	4,534	3			
Wheat and corn	3,072				
Barley	7	268		149	2
Oats	281			344	
Yams and potatoes	244		798	440	22
Bread	2,617	965		62	6
Tea	238	488		1,189	1
Canned goods	1,746	4,484	2,711	647	337
Corks			472	140	70
Copper		723			
Lead		334			
Iron	100	6,790	673	39	
Nails	286	635		59	
Hardware	3,671	10,749	900	2,583	20
Earthenware	51	692	296	710	57
Flour:					
Wheat	63,341				
Rye	6,299			41	
Corn meal	8,662				
Sugar, refined	6,263	2		85	
Fish:					
Salt	144			54	1,226
Pickled	102	17			8

Table showing the imports into St. Thomas during the year ended March 31, 1892—Cont

Articles.	From— United States.	Great Britain.	France.	Germany.	Denm
Boots and shoes	$2,225	$4,603	$11,275	$3,233	
Saddlery	270	423	121		
Leather	2,267	77	598	425	
Glassware	879	421	381	112	
Paper	616	718	1,272	764	
Playing cards	14			126	
Lumber	5,611	230			
Shingles	343				
Cement				3,220	
Bricks				200	
Marble	425	185			
Tapestry	22	27	222	85	
Floor mats	10	21			
Whisky	720	4,099	279		
Brandervin				174	
Wine	230	915	9,253	2,486	
Brandy		1,265	4,099	157	
Gin				15,383	
Spirits	1,253			10,933	
Cherry cordial				1,524	
Sweet liquors		1,548	2,036	7,442	
Beer		1,993	83	3,012	5,
Rum	1,324				
Rope	1,223	747	6	105	
Vinegar	192	3	343	15	
Coffee		22	78		
Rice		495		7,880	
Spices	45	193		624	
Tobacco:					
Loose	2,471			290	
Manufactured	5,016	144	22		
Cigars	2,644	185	3,229	1,976	1,
Coal	140,733	36,696			
Paints	613	2,480	36	213	
Sweet oil	3,413	984	2,502	255	
Petroleum	2,945				
Soap	1,347	8,009	76	2,780	
Candles	390	41		2,485	
Starch	3,103				
Raisins and currants	31	162		99	
Figs		35		5	
Prunes		242	47	5	
Dates		60			
Almonds		26		130	
Nuts	174	8		26	
Olives		84			
Sago	20	45		163	
Saloop		37			
Vermicelli			784	24	
Powder	16	170	296	2,689	
Drugs	1,521	2,118	656	1,733	
Jewelry	156	1,289	1,752	12	
Perfumery	1,745	320	1,691	527	
Fancy goods	1,415	6,044	5,124	4,552	
Oysters	117				
Hats:					
Straw	370	2,073	556	392	
Felt	232	1,132	539	114	

Table showing the imports into St. Thomas during the year ended March 31, 1892—**Cont'd.**

Articles.	From—				
	United States.	Great Britain.	France.	Germany.	Denmark.
Poultry	$16				
Sheep and goats	205				
Furniture	1,471	$406	$613	$1,877	
Carriage material	[illegible]				
Tar and pitch	88				$53
Resin and turpentine	78	10			
Ships' material	345			1,092	
Salt		73			
Ice	2,946				
Onions			677		
Miscellaneous	5,732	5,997	2,357	2,813	987
Total	341,002	227,893	84,812	104,831	22,096

Articles.	From—			Total.
	Spanish West Indies.	Other islands of the Danish West Indies.	Other countries.	
Cloth goods:				
Linen		$16	$9	$9,489
Cotton		230	212	118,303
Woolen			3	12,542
Silk			16	6,356
Mixed				278
Ready-made clothes		5	55	14,904
Salted and smoked beef		14	39	2,191
Tongues and sausages		16	14	1,566
Salted and smoked pork		95	146	6,919
Hams		67	10	4,110
Butter		98	4,605	23,777
Cheese		90	249	7,642
Lard		196	110	7,627
Beans and peas	$493	115	3,250	8,395
Wheat and corn	237	63	110	3,482
Barley			3	429
Oats		30		655
Yams and potatoes	304	27	5,265	7,100
Bread		33	150	3,833
Tea				1,916
Canned goods	149	51	67	10,192
Corks				682
Copper				723
Lead				334
Iron		6		7,608
Nails				980
Hardware		225	39	18,187
Earthenware		58	9	1,873
Flour:				
Wheat	688	3,566	4,156	71,751
Rye		102		6,442
Corn meal		329	142	9,138
Sugar:				
Refined		693	48	7,091
Raw	18,720	5,545	3,861	28,126

Table showing the imports into St. Thomas during the year ended March 31, 1892—Con

Articles.	From—			Tota
	Spanish West Indies.	Other islands of the Danish West Indies.	Other countries.	
Molasses	$12	$129	....	$
Fish:				
Salt	135	....	$10,566	12,
Pickled	....	....	6,524	6,
Boots and shoes	....	121	12	22,
Saddlery	35	30	20	1,
Leather	....	40	6	3,
Glassware	....	60	30	1,
Paper	....	20	45	3,
Playing cards	....	....	....	
Lumber	....	21	1,567	7,
Shingles	....	....	1,865	2,
Lime	....	1	14	
Cement	....	....	....	3,
Hard wood	....	7	130	
Bricks	....	72	....	
Marble	....	....	5	
Tapestry	....	....	....	
Floor mats	....	....	....	
Whisky	....	....	....	5
Brandervin	....	....	....	
Wine	27	164	227	13
Brandy	....	....	40	5
Gin	....	....	1,301	16
Spirits	....	....	264	12
Cherry cordial	....	....	....	1
Sweet liquors	35	46	2,511	13
Beer	....	346	257	10
Rum	5,112	6,162	4,436	17
Rope	....	....	....	2
Vinegar	....	....	....	
Coffee	1,508	....	6,457	8
Cocoa	....	....	286	
Rice	....	12	75	8
Spices	....	3	26	
Tobacco:				
Loose	....	667	240	3
Manufactured	....	943	140	6
Cigars	25,350	15	972	36
Fruit, fresh	982	128	693	1
Coal	....	....	106	177
Paints	....	....	6	3
Sweet oil	....	156	140	7
Petroleum	....	....	....	2
Soap	....	....	9	12
Candles	....	70	299	3
Starch	277	32	88	3
Raisins and currants	96	3	308	
Figs	....	....	32	
Prunes	....	....	29	
Dates	....	....	....	
Almonds	....	....	....	
Nuts	....	38	137	
Olives	16	....	....	
Sago	....	....	....	

Table showing the imports into St. Thomas during the year ended March 31, 1892—Cont'd.

Articles.	From— Spanish West Indies.	Other islands of the Danish West Indies.	Other countries.	Total.
Saloop			$77	$114
Vermicelli			42	850
Powder				3,171
Drugs			249	6,317
Jewelry			3	3,321
Perfumery	$1,640	$195	731	6,847
Fancy goods		39	594	18,160
Oysters			1	118
Hats:				
Straw		2	14,195	16,788
Felt		2		2,022
Poultry		21	116	153
Horses	70	550	325	945
Cattle	8,606	10	12,689	21,305
Sheep and goats		555	1,453	2,113
Swine		12	1,692	1,704
Furniture		139	67	4,573
Carriage material		200	12	905
Tar and pitch				141
Resin and turpentine				88
Ships' material			3,588	5,024
Salt		10	270	353
Charcoal	4	477	2,141	2,622
Ice				2,946
Onions	1,180		267	2,124
Miscellaneous	251	433	3,934	22,504
Total	65,927	23,601	104,877	974,999

Table showing the exports from the consular district of St. Thomas to the United States during the year ended March 31, 1892.

Articles.	Quarter ended— June 30, 1891.	September 30, 1891.	December 31, 1891.	March 31, 1892.	Total.
Bay oil	$563.53	$3,798.97	$550.13		$4,912.63
Bay rum	4,088.20		3,029.47	$1,901.07	9,018.74
Bay spirit			189.09		189.09
Brandy			1,746.68		1,746.68
Hides and skins	1,744.08	1,708.84	476.07	1,099.30	5,028.29
Miscellaneous	12.68				12.68
Rum	894.22	75.18	915.51	545.87	2,430.78
Shells, turtle	2,197.25		386.15	2,521.97	5,105.37
Wearing apparel and effects				142.35	142.35
Whisky	7,619.93	22,515.01	14,309.57		44,444.51
Wine	14.72	28.56		51.39	94.67
Total	17,134.61	28,126.56	21,602.67	6,261.95	73,125.79

Table showing the navigation at the port of St. Thomas for the year ended March 31, 189

Countries.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
American.								
Africa	....	....	6	2,615	....	....	....	....
Azores	....	....	1	328	....	....	....	....
Brazil	2	3,451	1	628	....	....	2	1,
British Guiana	....	....	4	1,719	....	....	....	....
British West Indies	25	59,431	5	2,173	25	58,830	14	8,
Danish West Indies	....	....	....	....	....	....	2	5
Dutch West Indies	....	....	1	372	....	....	....	....
French Guiana	....	....	3	755	....	....	....	....
French West Indies	....	....	12	4,786	1	2,806	....	....
Mexico	....	....	....	....	....	....	2	5
Portugal	....	....	2	921	....	....	....	....
Santo Domingo	....	....	....	....	....	....	3	6
Spanish West Indies	....	....	....	....	....	....	22	10,6
United States	26	61,636	25	14,127	27	62,882	15	6,
Venezuela	....	....	1	523	....	....	....	....
Total	53	124,518	61	28,947	53	124,518	59	28,
Austrian.								
British West Indies	....	....	....	....	....	....	1	6
France	....	....	1	667	....	....	....	....
French West Indies	....	....	1	387	....	....	....	....
Germany	....	....	1	596	....	....	....	....
Great Britain	....	....	1	600	....	....	....	....
United States	....	....	....	....	....	....	3	1,
Total	....	....	4	2,250	....	....	4	2,
British.								
Africa	....	....	2	525	....	....	....	....
Brazil	3	3,962	1	450	1	1,441	....	....
British Guiana	1	1,043	5	949	....	....	....	....
British West Indies	57	47,259	15	2,959	80	82,262	3	8
Colon	....	....	....	....	1	2,085	....	....
Danish West Indies	4	892	1	236	3	1,693	1	3
France	....	....	....	....	1	2,095	....	....
French West Indies	1	2,095	7	1,173	2	2,318	1	1
Germany	1	900	....	....	....	....	....	....
Great Britain	19	34,044	3	1,394	2	1,704	2	5
Halifax	12	14,104	....	....	1	1,180	....	....
Haiti	2	4,190	....	....	3	6,565	....	....
Mexico	....	....	....	....	1	900	....	....
Prince Edward Island	....	....	....	....	....	....	1	1
Santo Domingo	1	2,095	....	....	1	2,095	3	6
St. Vincent	1	1,477	....	....	....	....	....	....
Spain	1	1,214	....	....	....	....	....	....
Spanish West Indies	2	446	1	296	19	20,483	30	6,8
Teneriffe	1	1,474	....	....	....	....	....	....
United States	18	22,118	8	2,384	10	12,434	2	7
Venezuela	....	....	1	371	....	....	....	....
Total	124	137,313	44	10,737	125	137,255	43	10,3
Danish.								
Brazil	....	....	2	598	....	....	....	....
Denmark	....	....	1	240	....	....	....	....
Spanish West Indies	....	....	....	....	....	....	2	4
United States	....	....	....	....	....	....	1	5
Total	....	....	3	838	....	....	3	1,

Table showing the navigation at the port of St. Thomas, etc.—Continued.

Countries.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Dutch.								
Africa	....	....	1	929	....	....	....	....
Germany	....	....	1	304	....	....	....	....
Great Britain	....	....	....	....	....	....	1	929
United States	....	....	....	....	....	....	1	304
Total	....	....	2	1,233	....	....	2	1,233
French.								
France	11	17,896	....	....	7	11,361	....	....
French West Indies	14	9,831	....	....	13	8,240	....	....
Santo Domingo	2	3,241	....	....	....	....	....	....
Spanish West Indies	22	22,853	....	....	29	34,220	....	....
Total	49	53,821	....	....	49	53,821	....	....
German.								
Brazil	....	....	2	955	....	....	....	....
British West Indies	....	....	1	519	....	....	....	....
Germany	68	105,052	1	956	61	88,560	....	....
Great Britain	....	....	....	....	....	....	1	423
Haiti	29	41,836	....	....	11	16,826	....	....
Santo Domingo	10	15,287	1	423	13	20,464	....	....
Spanish West Indies	20	28,645	....	....	42	65,213	1	350
United States	....	....	1	889	....	....	3	1,911
Venezuela	2	2,792	1	350	2	2,549	....	....
Total	129	193,612	7	4,092	129	193,612	5	2,684
Haitian.								
Haiti	1	145	....	....	1	145	....	....
Norwegian.								
Africa	....	....	4	1,877	....	....	....	....
Brazil	....	....	31	14,253	....	....	....	....
British Guiana	....	....	1	427	....	....	....	....
British West Indies	....	....	1	357	....	....	6	2,593
Buenos Ayres	....	....	1	892	....	....	....	....
Danish West Indies	....	....	1	381	....	....	1	280
Dutch West Indies	....	....	....	....	....	....	1	240
France	....	....	4	2,549	....	....	....	....
Germany	....	....	6	2,449	....	....	....	....
Great Britain	....	....	5	3,451	....	....	....	....
Haiti	....	....	....	....	....	....	9	4,301
Holland	....	....	1	240	....	....	....	....
Honduras	....	....	....	....	....	....	1	631
Mexico	....	....	....	....	....	....	2	615
Portugal	....	....	1	290	....	....	....	....
Santo Domingo	....	....	....	....	....	....	1	458
Spain	....	....	1	580	....	....	....	....
Spanish West Indies	....	....	....	....	....	....	14	5,587
United States	....	....	....	....	....	....	26	15,000
Venezuela	....	....	2	795	....	....	1	263
Total	....	....	59	28,541	....	....	62	29,968
Russian.								
French West Indies	1	666	....	....	....	....	....	....
Haiti	....	....	....	....	1	666	....	....
Total	1	666	....	....	1	666	....	....

Table showing the navigation at the port of St. Thomas, etc.—Continued.

Countries.	Entered.				Cleared.		
	Steamers.		Sailing vessels.		Steamers.		Sailing ves
	No.	Tons.	No.	Tons.	No.	Tons.	No.
Spanish.							
Spanish West Indies	3	941	1	255	3	1,090	2
United States	....	....	1	363	....	....	....
Total	3	941	2	618	3	1,050	2
Swedish.							
Brazil	....	....	5	1,829	....	....	....
Danish West Indies	....	....	....	....	....	....	2
France	....	....	2	1,513	....	....	....
Portugal	....	....	1	397	....	....	....
River Plate	....	....	2	582	....	....	....
Spanish West Indies	....	....	....	....	....	....	5
United States	....	....	....	....	....	....	2
Total	....	....	10	4,321	....	....	9

SAM'L B. HORNE,
Consul

UNITED STATES CONSULATE,
St. Thomas, July 26, 1892.

FREDERICKSTED.

REPORT BY CONSULAR AGENT MOORE.

Table showing the number and tonnage of vessels entered and cleared at the port of
ericksted, St. Croix, for the year ended March 31, 1892.

Nationality.	Entered.				Cleared.		
	Steamers.		Sailing vessels.		Steamers.		Sailing ve
	No.	Tons.	No.	Tons.	No.	Tons.	No.
American	....	....	11	2,388	....	....	5
Danish	....	....	4	944	....	....	5
Dutch	....	....	1	22	....	....	2
English	34	38,586	6	1,254	34	38,586	5
Norwegian	....	....	2	580	....	....	....

WILLIAM F. MOORE,
Consular Agent

UNITED STATES CONSULAR AGENCY,
Fredericksted, June 23, 1892.

ST. CROIX.

REPORT BY CONSULAR AGENT TAYLOR.

Table showing the exports from St. Croix during the year ended March 31, 1892.

Articles.	To the United States.	Total exports.
Sugar ....pounds...	3,976,272	4,190,811
Rum....gallons...	19,362	44,868
Molasses....do......	....	1,151
Value of exports....	$115,462	$127,350
Export duty....	5,695	6,168

Table showing the custom-house valuation of imports at the port of Christiansted, St. Croix, for the fiscal year ended March 31, 1892.

From—	Value.	Duty paid.
Denmark:		
Direct	$1,484	$167
Via St. Thomas....	116	14
United States....	120,136	10,526
St. Thomas (a large proportion from the United States)....	94,217	10,480
Other foreign countries....	46,731	4,644
Total....	262,684	25,842

Table showing the export duty on sugar, rum, and molasses at Christiansted.

To—	Sugar.	Rum.	Molasses.
Denmark....	$598.36	$1.03	....
Europe	2,977.79	....	....
United States....	1,608.28	45.68	$103.01
St. Thomas....	17.94	92.81	.18
Other foreign countries....	1.55	....	....
Total....	5,203.92	139.52	103.19

Table showing the exports to the United States from Christiansted, as shown by certified invoices.

Articles.	Quantity.	Value.
Sugar ....pounds...	1,128,299	$40,324.73
Rum....gallons...	10,608	5,319.64
Tamarinds....barrels...	159	810.74
Limes ....do......	114	155.90
Total....	....	46,611.01

Table showing the number and tonnage of vessels entered and cleared at the port of Chri tiansted, St. Croix, from April 1, 1891, to March 31, 1892, inclusive.

Flag.	Entered.		Cleared.	
	No.	Tons.	No.	Tons.
Danish	12	2,015.67	12	2,015.
Norwegian and Swedish	2	601.43	2	601.
French	2	146.63	2	146.
British	2	622.96	2	622.
American	10	2,063.7	10	2,063.
Total	28	5,450.39	28	5,450.

JOS. L. TAYLOR,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Christiansted, June 23, 1892.

TRADE AND INDUSTRIES OF AMSTERDAM.

REPORT BY CONSUL SCHLEIER.

GENERAL CONDITIONS.

Although it must be said that the course of commerce and industr during the past year was, on the whole, disappointing and unsatisfactor yet when the disturbing elements which interfered with prosperity are take into account there appears less reason to doubt the existence of steady prog ress. Among these disturbing elements may be counted: The failure the crops and consequent famine in Russia; the paralyzing influence of th South American monetary crisis; the disturbance and uncertainty of trad considerably influenced by the protective measures adopted in the Unite States, France, and Spain; and the closing of our port by ice during th whole of the month of January, 1891.

In spite of the unfavorable influence exercised by these untoward ci cumstances, the amount of tonnage arriving at and departing from this por which may be taken roughly as the measure of the extent of business doin shows a not inconsiderable increase over that of 1890.

The conditions of our local industries have not shown any materi change, either for the better or the worse, as compared with the previous yea

The retail traders and storekeepers of the city appear, on the whole, t have had a satisfactory year. There were considerably fewer failures tha in the previous year. Nor has there been any marked distress among th laboring classes, always excepting that floating population which is attracte to all large cities from the agricultural districts and which is the first t suffer when work becomes at all slack.

There have been no strikes or trade disputes of any consequence t chronicle, either among artisans or laborers, nor does there at present see any prospect of such disputes arising. The leaders of the Social Democrati party here are active and untiring workers and agitators, but, although our laboring classes are quite ready to accept the advantages of agitation and to join in it whenever there is any prospect of advantage to themselves, they do not appear to have as yet, at all events, adopted the socialistic doctrines; and, although here, as in other great cities of Europe, imposing demonstrations were held on May 1 this year, ostensibly in favor of the eight-hour working day, it does not appear at all certain that the bulk of the working classes approve of a limitation of work to eight hours if this is to be accompanied by the prospect of any limitation of pay.

IMPORTS.

Coffee.—The course of the coffee trade in 1891 was abnormal and unsatisfactory. The high prices, especially for Java coffee, which ruled in the early part of the year gave rise to a good deal of speculation, *à la baise*, the quotation in January for delivery in November and December being fully 3 cents per pound lower than for spot delivery. A large crop was expected, but in the meantime the stocks of Java coffee were so much reduced that prices rose from 20 cents per pound in January to nearly 22 cents in April and May; in September a rapid fall to 16 cents per pound took place, followed by a recovery to about 19 cents. The fluctuations in Santos coffee were even greater. Quoted at about 16 cents per pound in the beginning of the year, it rose to 19 cents in May, to fall in September as low as 12½ cents, in consequence of a heavy drop in the markets of New York and Havre for futures, and closing in December at about 14½ cents per pound. The action of France in raising the "surtaxe d'entrepôt" on coffee from 5 francs per kilogram to 10 francs, has considerably impeded the export trade to that country. The turnover of the Amsterdam clearing office was again smaller, say: In 1891, 722,000 bags: 1890, 978,500 bags; 1889, 1,150,250 bags—showing a considerable decrease in speculative transactions.

Sugar.—The law regulating the excise on sugar was so far modified in 1891 that beet sugar enjoys slightly less protection; but there seems no prospect of diverting any of the increasing production of Java sugar to the mother country. No colonial sugar was imported in 1891. The total importation of raw sugar was 90,017 tons, of which Amsterdam took about 70,000 tons. Prices of raw beet opened in March at $3.03 to $3.06 per cwt., falling gradually to $2.88, recovering the original figure, however, in July, and advancing, in consequence of the very unfavorable weather in the autumn, to $3.72, and closing at $3.54.

Tea.—There was but little fluctuation in prices. Of China tea, Amsterdam imported 2,648 quarter chests, as compared with 3,042 quarter chests in 1890; of Java tea, 18,944 quarter chests, as compared with 30,022 quarter chests in 1890. The European consumption is comparatively a very large one, averaging for the years 1885–'89 as follows: Netherlands, 5,173,694 pounds; Germany, 3,975,882 pounds; France, 1,168,317 pounds. Java-Assam tea is preferred to the ordinary sorts, but British Indian teas find no market here. Prices remained almost without change throughout the year, between

$225.60 and $220.80 per ton. The Dutch market is losing some of its importance in consequence of direct shipments to the Mediterranean port from the places of production.

Cocoa.—This article is continually increasing in importance, the quantit brought to this country in 1890 being 6,995 tons; to London, 10,39 tons; to Hamburg, 7,380 tons. Java cocoa now begins to be an important factor in the trade, the importation being 170 tons in 1891, as compared with 20 tons in 1888, 35 tons in 1889, and 104 tons in 1890. Ceylo sent 20,532 cwts. to Holland in 1891. The consumption increases wit rapid strides, having doubled itself in England and quadrupled itself in th United States during the past ten or twelve years. The price of first qualit Java varied from 22½ to 25½ cents per pound.

Indigo.—The trade in indigo was very unsatisfactory, in consequence c the entire absence of orders from Russia and the falling off in the export of dyed goods to South America and the United States. The importation here reached 4,791 chests only, of which a large portion remained unsold at the close of the year, the fall in prices being about 25 per cent.

Rice.—The total imports of rice were 1,211,000 bags, as compared wit 1,357,250 bags in 1890, of which quantity Amsterdam and Zaandam receive 911,000 bags, as compared with 994,787 bags in 1890. Prices of cleane Rangoon rice ranged from $2 to $2.80. It was anticipated that, in consequence of the hard winter of 1890–'91 and the bad harvest in Europe, th demand for cleaned rice would be good, and this expectation was partl realized; but the heavy duties imposed by some of the countries formerl purchasing largely from Holland caused the export demand to fall off ver much.

Cotton.—The importation to Amsterdam amounted to 42,723 bales against 30,931 bales in 1890. The course of the market was steadily downward until August, when, in consequence of a report of a short crop i America, a reaction took place, which lasted, however, but a short time Middling American was quoted early in the year at 10 cents per pound, an fell in August to 8¾ cents, rising again to 9¾ cents, but closing in December at 8¾ cents. Stocks are large, and consumption has not kept pac with production. Great losses were incurred in the trade. Transactions i the clearing house reached 49,400 bales.

Tobacco.—This article was, in almost every respect, a most disastrous on in 1891. The importation was very large as compared with the previous year

Kinds.	1890.	1891.
	Bales.	*Bales.*
Sumatra	148,689	205,10
Java	82,005	98,47
Borneo	2,243	7,60

But the quality of by far the larger proportion was beneath the averag and difficult of sale. Add to this the large excess shipped to the United State in the previous year, which was far beyond any possibility of consumptio and only exported to save the increase of duty, and it is not surprising that in 1891 the exportation to the United States was only 7,360 bales, as compared with 48,182 bales in the previous year. Nevertheless, at the close of 1891 the market of Amsterdam was pretty well cleared of stock, though in most instances at a terrible sacrifice to the planters; and, as these are to a very great extent supported by Amsterdam capital, the losses which fell on the city were immense indeed. As to the quality, it becomes more and more evident that the finer descriptions of covering leaf are confined to but few districts in Sumatra and Borneo, and that on many plantations the cost of production is considerably in excess of the price which can be realized here for the ordinary descriptions produced on the same. The Java crop was also large in quantity and inferior in quality as compared with that of the previous year. The average prices realized in 1891 were: For Sumatra, about 27 cents per pound; for Java, 6½ cents per pound for Crosooh, 14 cents per pound for Bejoeki, and 17 cents per pound for Vorstenlanden. The last named is a much better crop than the two former, but neither of them is exported to the United States. The importation from Borneo was also larger than in the previous year, and the better qualities were promptly and easily disposed of, though at lower figures. The total importation amounted to 9,100 bales, against 4,810 bales in 1890, and the price for good quality was about 28 cents per pound, as compared with 32 cents per pound in 1890. This tobacco is very suitable for covering cigars, and has already made for itself an excellent reputation in this respect, and is purchased in the United States.

Petroleum.—There was some increase in the importation of Russian petroleum, of which about 22,000 barrels reached this port. American petroleum was imported nearly exclusively in tank steamers, the quantity (309,626 barrels in fourteen tank steamers) being rather less than in 1890 (315,100 barrels). Prices of American fell from $3.14 and $3.36 per cwt. in the beginning of the year to $3 and $2.92 in May, recovering slightly in July, but falling again in October to $2.92, closing at $3.20.

Wheat.—The failure of the European crops was more than counterbalanced by the surplus production of the United States, and there were considerable fluctuations in prices, with a very lively market. Small stocks in the beginning of the year, the prospect of a short crop of winter wheat all over Europe, and moderate prices encouraged consumers, as well as speculators, to large purchases from the Black Sea and the Danube. When, in the autumn months, the complete failure of the Russian crops became known and the prohibition of exportation was issued by the Russian Government, there was naturally great excitement in our markets. The exports from the Russian ports immediately before this prohibition took effect were, however, on a very large scale, and, together with the American supply, which, in consequence of the very large crop in the United States, was exceedingly plentiful, so much more than filled the deficiency anticipated that in the last weeks of the year prices began to give way rapidly and a period of serious loss to importers commenced. Besides the American supplies, British Indian wheat, the cheapness of which attracted our consumers, was imported in larg quantity. The total importation here reached 282,277 quarters, as compare with 100,634 quarters in 1890. Prices at the end of December, 1891, we as follows per quarter of 480 pounds: For Odessa, $9 to $9.60; Danub $8.36 to $9.26; soft red Kurrachee, $8.72 to $8.90; average America $9.08 to $9.40.

Rye.—Rye, being chiefly a Russian product, was subject to greater flu tuation than wheat, more especially as there are always large dealings "futures" on this market. The demand from the Rhine provinces was goo the home consumption brisk, and the prohibition of exportation from Russ drove prices up so far that rye was actually quoted higher than wheat, ar this disproportion continued to exist for months. A consequence hereof w a serious diminution in the consumption of rye, which was replaced by whe and corn. At the close of the year the circumstances above referred to e ercised a very depressing influence, and a rapid fall in prices commence Quoted at the beginning of the year at $5.62 per quarter of 480 pound prices rose to $10.16 per quarter in August, fell to $8.88, to rise again $10.08, closing at about $8.76, with the prospect of a further decline.

Barley.—This article was less affected by fluctuations than wheat or ry but still felt the influence of the general situation. Imports were, howeve large, being 426,103 quarters, as compared with 328,500 quarters in t previous year. Shipments were principally from Odessa. Prices reach $7.20 to $7.44 per quarter of 480 pounds in the autumn, falling toward t close of the year.

Corn.—Very large quantities were imported from the United States, pri cipally on speculation, in the expectation that fodder of all sorts would scarce and dear. Prices ranged between $4.92 and $5.62 per 480 pound but the prospect of a very considerable oversupply depressed prices ve greatly toward the close of the year.

Oats.—Prices of oats also rose very considerably, but the supplies fro America were far more than sufficient to supply the deficiency of the Russia crop, and the year ended with a rapidly falling market.

Linseed.—There was again a marked increase in the importation, owi to the greater demand for linseed cake, and the prices of linseed oil we also fairly remunerative during the summer. British India sent about 62 000 tons of seed, a figure as yet unapproached. In North America the cu tivation of linseed has greatly increased, and considerable purchases we made for Holland. Russian seed could not compete in price with these tw sorts. Prices ranged from $9.68 to $9.72 per quarter, closing at about th latter figure.

Timber.—This trade was, on the whole, not of an unsatisfactory characte in 1891. Prices were steady, with a slightly advancing tendency for sawe timber, while the price for balks rose considerably in consequence of the d minished production and importation from Sweden. The quantity importe remained about the same as in 1890. American pine timber becomes a mor and more important article in our market, and the hewn balks from Americ begin to replace the Rhine balks for heavy dimensions. American fir does not appear suitable to this market, the price being too dear, taking the quality and the heavy freight into consideration. Teak sleepers from Java were for the first time imported in any considerable quantity.

Coal.—In consequence of the high prices maintained by the coal and coke syndicates and colliery unions of Westphalia during the year, the importation of English coal into Holland was very considerably increased, and reached the figure of 746,000 tons, as compared with 501,000 tons in the previous year, the total consumption of the country being about 4,500,000 tons, of which, therefore, about one-sixth is supplied by England and five-sixths by Westphalia. The proportion of English coal imported has steadily increased of late.

EXPORTS.

Cattle and sheep.—The exports from this port to London alone in 1891 amounted to 9,816 head of cattle, principally calves, and 90,427 sheep.

Oils.—Although the customs duties imposed by other countries were a great hindrance to the trade, still the quantities exported were considerable; prices, however, reached a very low standard, in consequence of the lessened demand from abroad. Rape oil especially was too high in price to encourage exportation. Prices ranged from $6.20 to $7.04 per cwt. In linseed oil there was more doing, but principally on speculation. Prices were $4.06 to $5.10 per cwt.

Refined sugar.—The trade is in the hands of the four large refineries here. The majority of these maintain that it is impossible for the Dutch sugar-refining industry to hold its own in the face of the protection given on all sides by surrounding countries to the home industry, while the German refiners especially are able to work more cheaply, as their material is home produce, whereas the Dutch refiners have, for the most part, to import their raw sugar from other countries. The English market is, of course, the chief buyer. One large refinery, however, maintains that it is still possible, by means of increased production and of the adoption of every known improvement in the mode of working, to produce at a profit, especially by working up the cheaper description of raw sugar. The total export of refined sugar from Amsterdam was 85,560 tons, as against 88,017 tons in the previous year.

Liqueurs.—The exportation has not diminished, although foreign countries have materially increased their import duties; but the utmost exertions have to be made by distillers, both as to quality and cheapness.

Cocoa and chocolate.—This trade continues to increase in importance, both the importation of cocoa and the exportation of cocoa and chocolate again showing an increase over the previous year.

Cigars.—The demand for Dutch-made cigars continues steadily to increase, especially for the cheaper sorts. Here, again, the customs duties imposed of late by other countries have been a great hindrance to trade. The Dutch East Indies have taken larger quantities. The English market has not yet recovered the blow caused by the passing of the merchandise ma act.

DIAMONDS AND DIAMOND INDUSTRY.

The past year was by no means a satisfactory one either for the trade for the industry. The South American republics and Russia were, for obv ous reasons, nearly out of the market. On the other hand, the Unit States bought very largely, principally diamonds of the highest class, which the American purchaser pays more attention than those of any oth nation.

The restricted importation into London from the Cape and the diamo syndicate there cause the price of the raw article to be kept disproportio ately high as compared with that for the finished diamond. On the oth hand, great fluctuations in value can no longer take place, and the trade generally steadier.

The position of the smaller manufacturers and cutters remains, howeve a very sad one. They have to buy at comparatively high rates the r diamonds which their more powerful competitors do not care to take. It to be feared that the small manufacturer and the cutter who works on own account will eventually be crushed out of existence.

The position of the workmen, skilled or unskilled, has also become l favorable, especially as there are many more workers than the restrict supply of raw material can furnish with employment.

The owners of "mills," which are hired to the diamond-cutters, a naturally also very unfavorably affected by this state of things. The re has fallen to a figure which no longer suffices to cover expenses, and doubt exists that many of these establishments, called into existence at period of inflation in the trade, will have to be devoted to other purposes.

STOCK EXCHANGE.

The Amsterdam Stock Exchange formed, as was natural, no exception the generally depressed and lifeless condition of the European financial e changes during the past year; not that any such great shocks were exp rienced here as convulsed other markets, but that confidence was serious impaired and the inclination to invest much restricted. In this respect t following table of funds emitted on this market during the past year, compared with 1890, is of interest:

Description.	1890.	1891.
European state loans	$387,648,000	$224,236,
Other state loans	182,400,000	10,497,
American railway	35,904,000	2,966,
Russian railway	499,200	16,147,
South African stocks	6,652,800	4,800,
Mining stocks	2,596,800	988,
Industrial companies in Holland	16,895,600	6,864,
Plantation (Dutch East Indies)	2,784,000	2,779,
Municipal loans	2,755,200	3,009,

The amount of bills discounted and loans on produce, etc., made by the Netherlands bank show a diminution of fully 15 per cent as compared with the figures of the previous year.

Portuguese and Brazilian stocks were those whose depression most unfavorably affected the Amsterdam Stock Exchange.

At the close of the year nearly all stocks held in this market showed a marked diminution in value, the principal sufferers being the holders of Dutch East India plantation shares.

SHIPPING.

Table giving return of all shipping at the port of Amsterdam in the year 1891.

ENTERED.

Nationality.	Sailing.		Steam.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
British	33	16,981	827	567,704	860	584,685
Austrian	1	562	....	....	1	562
Belgian	....	....	1	265	1	265
Danish	17	2,792	8	7,286	25	10,078
French	1	67	7	3,782	8	3,849
German	10	4,882	215	149,440	225	154,262
Greek	....	....	2	2,292	2	2,292
Italian	4	3,930	....	....	4	3,930
Dutch	84	38,692	444	343,473	528	382,435
Norwegian	76	27,237	71	34,574	147	61,811
Russian	8	3,112	....	....	8	3,112
Spanish	....	....	26	28,887	26	28,887
Swedish	5	1,746	24	15,482	29	17,228
Total	239	100,211	1,625	1,153,185	1,864	1,253,296

CLEARED.

Nationality.	Sailing.		Steam.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
British	41	18,145	821	554,870	862	573,015
Austrian	1	562	....	....	1	562
Belgian	....	....	1	265	1	265
Danish	18	3,097	8	7,556	26	10,653
French	1	92	7	3,782	8	3,874
German	15	6,433	195	130,374	210	136,807
Greek	....	....	3	3,212	3	3,212
Italian	3	2,121	....	....	3	2,121
Dutch	88	43,134	474	373,604	562	416,738
Norwegian	71	24,542	73	35,103	144	60,645
Russian	9	4,353	....	....	9	4,353
Spanish	....	....	24	26,596	24	26,596
Swedish	6	1,870	23	14,736	29	16,606
Total	253	105,349	1,629	1,150,098	1,882	1,255,447

THE MERWEDE CANAL.

It is hoped that the whole of this important work will be completed this year. Already the communication between Amsterdam and the upper Rhine has been made as far as the River Leck, and as the necessary dredging for improving the depth of this river will be also carried out in th course of this year, Amsterdam will at length be in possession of a good a free water way to Germany, and will be in a position to compete for a lar share in the ever-increasing water traffic to that country.

PRINCIPAL ARTICLES OF IMPORT.

Table showing some of the principal articles of import to the port of Amsterdam during years 1889–'91.

Articles.		Quantity.		
		1889.	1890.	1891.
Coffee	tons	30,284	24,679	29,
Sugar	do	94,158	62,884	80,
Tea	do	2,746	2,023	1,
Tin	do	5,355	4,448	....
Hides	number	268,983	274,175	311,
Indigo	tons	323	233	
Rice	do	28,438	25,591	29,
Cotton	bales	28,974	30,439	42,
Tobacco	tons	23,063	23,586	29,
Rye	quarters	444,534	265,097	397,
Wheat	do	191,213	107,211	263,
Barley	do	42,164	23,344	72,
Flour	tons	24,514	26,517	31,
Linseed	quarters	282,581	334,520	444,
Petroleum	tons	36,989	49,580	58,

YMUIDEN.

The construction of the new locks is being pushed forward with vigo and when completed will facilitate the entry of the large vessels from th North Sea considerably, since now, owing to the shortness of the prese locks, these vessels can not enter the canal until the tide of the sea is on level with the canal.

DOCKS AT AMSTERDAM.

A breakwater for the better protection of vessels discharging at th Handelskade has been completed, with excellent result, and this constru tion is capable of being converted at a future date into a new quay whe such shall be found necessary. That this may probably soon be the case best shown by the following figures, showing the progress made by the trac of the city during the past thirty years. The net tonnage of the vesse entering the port amounted to:

Year.	Number.	Tons.
1861	2,073	439,
1871	1,620	527,3
1881	1,658	731,8
1891	1,723	1,507,5

It was thus nearly quadrupled in this period and more than doubled within the past ten years.

The increase in the size of the vessels is most remarkable.

The entries at Ymuiden, which include the vessels bound to Zaandam and Westzaan, etc., amounted to 1,813,415 tons net.

T. M. SCHLEIER,
Consul.

UNITED STATES CONSULATE,
Amsterdam, July 21, 1892.

AFFAIRS IN SIERRA LEONE.

REPORT BY CONSUL BOWSER.

I have the honor to report the condition of trade as being about the same as when I reported last June.

There has been no increase of American business houses here this year. American vessels have arrived and departed to the same number as formerly. There was an attempt made to introduce some American machinery here last January by a firm in Buffalo, such as sugar mills, rice mills, coffee-hullers, and, in fact, any machinery that would help develop the vast resources lying idle here. English prejudice was, however, so strong against anything of American origin that the agent could not make any opening, and was compelled to go further down the coast. The all-absorbing interest here centers in trade by bartering with the natives, by which a precarious living is eked out, no preparation for to-morrow being necessary in this hot climate and manual labor being considered degrading by those who can manage to employ servants, and servants' wages are low compared to the United States. Servants receive 30 cents per day and find their own food, or 24 cents and you feed them. The former is decidedly the cheapest; $3.60 per month for a man, you feeding him, is called good wages. The women here do not hire out to service; the boys and men do all the housework.

Under different auspices and conditions this could be made a fine country. American push and inventions would develop the resources of this country to a great extent in a short time, but at present Sierra Leone can only be called a coaling station.

The imperial Government maintains a garrison of soldiers here and is putting up barracks and buildings to better accommodate them. Only one regiment at a time is quartered here. That now here consists of West Indians, with white officers.

The colonial government consists of the governor, colonial secretary, treasurer, collector of customs, and subordinates. There have been five changes in the governor's office in eight months, different governors or administrators each time.

The town is governed by a legislative council composed of the gove and heads of the departments down to treasurer and the military comma

Nobody pays taxes. The Government does all that is done. The tion of a municipal government is now being agitated, and meets with objection.

Agriculture is not carried on to any extent, not half enough, outsi garden vegetables, being raised to support the colony.

Churches and schools are in as prosperous a condition as could b pected; in fact, education is in advance of many other things.

This colony is 104 years old, yet it is only now making a move to h city government. There are 30,000 inhabitants in Freetown alone 30,000 more in a radius of 10 miles.

BOLDING BOWSER,
Consu

UNITED STATES CONSULATE,
Sierra Leone, June 30, 1892.

AMERICAN GRAIN IN SPAIN.

REPORT BY CONSUL TURNER, OF CADIZ.

I have the honor to again call the attention of the Department t value that a sample collection of American grains placed on exhibit at consulate would have for developing trade. About a year ago the De ment of Agriculture signified its intention of sending such a collecti Cadiz, but up to date nothing more has been heard of it. The grain here are a failure, and I once again urge that a sample of American g with their commercial classifications and present export prices, be se this consulate to be placed on exhibition at the board of trade rooms o city.

From the inclosed letter of our agent at Huelva you will see tha quiries have commenced regarding the importation of corn.

R. W. TURNER,
Consu

UNITED STATES CONSULATE,
Cadiz, September 6, 1892.

CONSULAR AGENT CATLIN TO CONSUL TURNER.

[Inclosure in Consul Turner's report.]

DEAR SIR: I have inquiries from a few friends who wish to import maize from the States, and I shall be glad if you can furnish me with the addresses of any exporters and also give me any particulars with regard to the importation of this product into Sp

Yours respectfully,

JNO. R. CATLI

LAND AREA OF DENMARK.

REPORT BY CONSUL RYDER, OF COPENHAGEN.

Tabular returns have lately been issued from the statistical bureau of this city relating to the extent and employment of the land area of Denmark at the close of the year 1888. The publication of these returns has been considerably delayed, owing to the department having been put to extra laborious work in the correction of a large number of the returns, which in many instances were found to have been based more upon estimates than upon ascertained facts.

The registered land area at the close of 1888 for the entire Kingdom was 6,878,280 barrels of land measure (1 barrel = 1.4 acres); in the islands, 2,340,970 barrels; and in the peninsula of Jutland, 4,537,310 barrels. The estimated water area in 1888 for the Kingdom at large was 75,855 barrels (34,727 in the islands and 41,128 in Jutland).

The aggregate area of Denmark, according to the previous census taken in 1881, having been 6,950,278 barrels of land, an increase of 3,857 barrels is thus found to have taken place in the land area of the Kingdom under the census of 1888, which is due to the recovery of land from the sea in the island districts; no change occurred in the Jutland peninsula.

In the aggregate area of 1888 105,990 barrels of land fall to the share of the towns and 6,848,145 barrels to the rural districts. The employment of this area, according to the tables just issued, was distributed at the close of 1888 in the following manner:

Description.	Barrels.	Description.	Barrels.
Pasture land	2,735,401	Fens	219,285
Arable land	2,457,514	Quicksands	73,694
Heath land	738,701	Garden ground	51,277
Woodland	411,218	Building ground	48,704
Hedges, highways, footpaths, and water area	108,246	Stony and uncultivated ground	42,211

In making a comparison between the respective conditions of the two main divisions of the Kingdom, it is shown that for pasturage and arable land taken together 1,956,452 barrels were employed in the islands, and 3,236,463 barrels in Jutland, and that in the Jutland division the area of pasture land exceeded that of the tillage area by 471,021 barrels, while in the islands the tillage area exceeded that of the pasture land by 193,134 barrels.

Of the heath tracts of land, which in 1888 amounted to 738,701 barrels, 726,530 barrels fall to the share of Jutland, only 12,171 falling to the islands. Of the woods and forest area, amounting to 411,218 barrels, the larger share—225,390 barrels—falls to the islands, with 185,828 barrels to Jutland. Again, with the bog and fen lands the largest proportion is to be found in Jutland, where they occupy 181,698 barrels, while onl 37,587 barrels are contained in the islands.

Looking next at the aggregate of the Kingdom's land area devoted t the culture of the four principal grains during the last three periods o census taking—in 1888, 1881, and 1871—these are seen to have been of th following nature:

Grain.	1888.	1881.	1871.
	Barrels.	*Barrels.*	*Barrels*
Oats	772,394	728,966	672,24
Barley	540,327	574,565	551,7
Rye	509,255	485,342	449,28
Wheat	88,008	101,337	103,08

From this summary it will be observed that the wheat area has decline at both periods of census-taking, while the rye area has met with an in crease. The oats area also received an increase at both periods. The bar ley area is said to have been subjected to fluctuations at the different periods

In the culture of the other grains the tables show that 9.97 per cent o the arable land was employed for mixed seeds, as well for ripening as fo green fodder; for buckwheat, 1.47 per cent; and for peas and beans, 1.2 per cent.

The aggregate area employed in the culture of the different root product for the Kingdom at large in the year 1871 amounted to only 10,203 barrels in 1881 it had increased to 34,326 barrels, and by the census of 1888 i amounted to 95,911 barrels, that is to say, the culture of these products i 1888 for the entire Kingdom was ninefold greater than in 1871. Leavin out the potato plant, the employed area for root crops in 1888 was distributed as follows: Mangolds, 34.94 per cent of the area; turnips, 33.41 pe cent; sugar beets, 13.01 per cent; carrots, 11.52 per cent; kohl-rabi, 4.0 per cent; chicory, cabbage, and other plants, 3.04 per cent.

An increase has also taken place in the area of garden ground. Unde the present census this is credited in the returns with an area of 51,277 barrels, against 45,168 barrels in 1881 and 37,157 barrels in 1871.

The area of heath land from 1881 to 1888 has, on the other hand, bee diminished by 3 per cent in the Jutland division of the Kingdom.

Finally, it is to be observed from these tables that in 1888 the extent o the drained lands of the Kingdom was 581,608 barrels in the islands and 273,929 barrels in Jutland, against 242,762 barrels in the islands and 120,766 barrels in the Jutland peninsula in 1871.

HENRY B. RYDER,
Consul.

UNITED STATES CONSULATE,
Copenhagen, June 29, 1892.

ORIGIN OF SPANISH TITLES.

REPORT BY CONSUL BOWEN, OF BARCELONA.

PRINCIPE DE ASTURIAS.

At the instance of Don Juan I a law was passed according to the eldest sons of the Castilian kings the title of "Principes de las Asturias." The first to obtain this title was Don Enrique, son of Don Juan. The ceremony took place on the 18th of April, 1388, and was as follows: The king sat on a magnificent throne, put a purple cape over his son's shoulders, a hat on his head, and a gold wand in his hand, and then kissed him and said: "Principe de Asturias, sentaos" (Prince of Asturia, be seated).

GRANDES DE ESPAÑA.

Don Silo, King of Leon, who began his reign in 774, instituted toward the close of that year the noble order "Ricos Homes," who, with the prelates of his Kingdom, were to confirm royal privileges and were intended to counterbalance the power of the prelates. This order existed in Castile and Leon until 1516, when the Catholic kings gave them the title "Grandes de España," but deprived them of their prerogative to confirm royal privileges. In 1520 Charles V conceded to them the honor of remaining covered in the presence of the kings, dividing them into three classes. Those of the first class could listen and talk to the kings with their heads covered, and were called "cousins" by the kings. Those of the second class could talk, with their heads covered, to the kings, but must uncover when addressed. Those of the third class could remain covered in the presence of the kings, but had to remove their hats when speaking or spoken to. To the second and third classes the kings gave the appellation "parientes" (relations). The same Charles V ordered that the kings be addressed as "majestades" (majesties) and not "altezas" (highnesses), as theretofore.

DUKES, MARQUISES, AND COUNTS.

Duque, derived from the Latin word *dux* (captain of the army), and to-day the title of most importance, was created after that of *marqués* (marquis) and *conde* (count), the first duke having been the Duke of Benavente, 1793. *Marqués*, which is the title next in importance to that of duke (*duque*) and which anciently signified "defender of the boundaries," was first attached to the name Villena in 1366. *Conde* (count), from the Latin *comes* (a companion, he that accompanies the prince or sovereign), is the most ancient title after the aforesaid "Ricos Homes." The first count was Count de Trastamara, of Castile, who obtained his title in 1328.

Of the population of Spain one-fifteenth is said to be nobles.

HERBERT W. BOWEN,
Consul.

UNITED STATES CONSULATE,
Barcelona, July 7, 1892.

WHEAT LOSSES IN MANITOBA IN 1891.

REPORT BY CONSUL TAYLOR, OF WINNIPEG.

In my commercial report for 1891 I referred to the great loss of the whea crop in Manitoba by exposure to stormy weather in badly constructed stook and stacks, and the delay in thrashing from the disproportion of the quantity produced to the labor available. In further illustration I give an articl from a reliable Manitoba journal, the Pilot Mound Sentinel:

> Never before in the history of the province has Manitoba suffered such a loss of grain a has been experienced in the case of the crop of 1891. The amount of ground under cultiv tion was enormous and the yield per acre something unprecedented. The management o such a quantity of produce was wholly beyond the means at the disposal of farmers. Hel was costly and difficult to obtain; the inferior and undesirable reaping machines in use wer continually breaking in the heavy grain and the labor of stacking was exhausting, owing t the unusual weight of the sheaves, while many farmers had from fifty to a hundred and twent stacks to build. Before the large harvest was gathered and while many fields were still covered by stooks the winter set in with unusual severity, commencing with a violent storm th batted the stacks full of snow and made the work of thrashing difficult, if not impossibl The intense cold caused the weak and brittle metal of the thrashing machines to give way a if the castings had been made of clay in a brickyard instead of being constructed in a foundr Thaws, followed by frequent blizzards, made the stacks a sheet of ice, crusted by snow, wit the tops only projecting from surrounding drifts. Thrashing had finally to be abandone after enormous quantities of grain had been rendered useless by the ice that became mixe when the sheaves were passing through the machine, and the work of reducing the stack which should have been done early last fall, is going on now on some farms.
>
> The result of all these disasters is that an exceedingly large proportion of the heavie crop of grain that any country ever produced has been wholly lost. Owing to the destructiv wind storms that swept the country in August and to the damage from early frost, thousand of acres of grain were never cut, thousands of acres were cut and never stacked, thousands o stacks that were erected in excellent condition were never thrashed and never will be, havin been destroyed by snow and rain. Hundreds of thousands of bushels of grain have been s damaged by ice and damp received either in the stacks or in the ill-constructed granaries o the farmers that the whole has heated, and grain fields have this season been ruined by farmers sowing damaged wheat. In places in the vicinity of Pilot Mound the road has in a manner been graded with grain, which was at one time excellent, but which, becoming heated was hauled out as useless. During the heavy rains of last week there was as much wheat exposed, having been spread out to dry near the elevators, as would have kept the owners i flour perhaps the remainder of their lives had the grain been properly saved.
>
> The lesson taught by the disasters of last year are that men should not attempt more work than can be accomplished, no matter how great may be their necessities, for in such cases the whole is sometimes lost. Had the farmers of Manitoba reaped, stacked, and thrashed half the grain that grew on their farms last season and burned the remainder without cutting it they would have been better off than they are by attempting to save the whole. In the efforts to gather an enormous harvest from immense fields some men killed themselves, others have been so broken down by excessive labor that they will suffer from their exertions all their lives, and in thousands of cases the whole work has been lost.

JAMES W. TAYLOR,
Consul.

UNITED STATES CONSULATE,
Winnipeg, July 29, 1892.

CONSULAR REPORTS

ON

OMMERCE, MANUFACTURES, ETC.

No. 146.—NOVEMBER, 1892.

THE WORLD'S 1892 CROPS.

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

I submit herewith a report on the growing crops of Austria-Hungary and he world's crops, as published by the Austrian and Hungarian ministries griculture, and the reports on the crops of the various countries of the ld, as published by the committee of the twentieth international grain seed market, which met at Vienna on August 29 and 30, 1892; the er have been commented upon by some general remarks.

The importance of the matter to our country and to the world in general l not be dwelt upon. I have taken particular pains in securing the most ble and trustworthy material from official sources.

AUSTRIA.

The ministry of agriculture has published the following report on the s of Austria up to August 22, 1892:

> n consequence of the highly favorable development of the kernel, the yield of the grain in general turns out still better than was assumed in the last report. Galicia especially this time be favored with a very good yield of the four principal grain crops.
>
> he rye crop, in consequence of the good thrashing and in spite of the imperfect ears h sometimes occur, may now, on the average, be classified as good middling, although gard to the quantity of straw by itself it might have been estimated at scarcely middling. rye crops of Silesia, Galicia, and also of Salzburg and Vorarlberg, may be classed as ; however, those of Styria and Carniola as middling, and all the rest of the rye crops be classed as good middling. The quality of the kernel is much praised. Where any plaints at all are made it is not in consequence of the imperfect development of the seed, f the inauspicious weather during harvest time, in consequence of which the kernel here here has sprouted in the field.
>
> he wheat crop in general considerably surpasses the rye crop in regard to the number heaves per hectare, and is promising as good a thrashing; hence it may be estimated as middling to good. Good wheat crops were those of Bohemia, Silesia, Galicia, Lower Upper Austria, Salzburg, Tyrol, and Vorarlberg; as middling must be considered those rniola and Istria; as weak middling that of the Wippach Valley, in Carniola, chiefly in

consequence of the great injury caused by grubs. In the valley of Budweis the yield been greatly damaged by *Chlorops tæniopus*. The quality of the wheat kernel, taken on average, is satisfactory; only where the crop was beaten down the quality is less satisfacto Complaints of rust or rot of the kernel occur but very rarely.

The barley crop may be set down as rather above good middling. As entirely goo may be considered in Bohemia and in the Hanna of Moravia, although in Bohemia there occur some middling and even weak middling barley crops. The barley crops of Up Austria and of Tyrol may be set down as nearly good. Next comes the barley crop of Gali which can be considered as only good middling. In all the other districts it turned out eit good middling or nearly good middling. In regard to the quality of the barley, the repo in general, are not so favorable as in the case of rye and wheat; but still by far the gre part are favorable. The inferior quality that occurs refers mostly to loss of fine color cau by local unfavorable weather during harvest time and partly to inferior weight chiefly in th numerous cases of great heat which forced ripening.

The oat crop is relatively least satisfactory of the four principal grain crops. As g middling to good may be considered the crops of Galicia, Bukowina, Lower and Up Austria, Salzburg, and Tyrol, while Bohemia and Moravia yielded only middling crops. the ripening of a good deal of oats has been too quick, there is much light grain.

The harvesting of pulse is partly going on and partly ended, and may be set down at le as good middling; but in some parts of Bohemia, Moravia, and Bukowina the crop has b ruined by the gamma (moth), and in Carniola by grubs. In consideration of the yield in other parts of those countries, the crop may be estimated in Bohemia at least as good middli in Bukowina as middling, and in Carniola only as weak middling.

To maize the heat generally proves very useful, but in some places it has already b injurious. The future will depend on the weather. The perfect ripening of that grain pears already to be certain, even in parts where maize frequently will not ripen. In m parts of Bukowina maize shows but few ears; in Galicia it suffered somewhat from c tinued rains before the heat set in; and in Carniola it has been greatly injured by grubs wireworms. But in Styria it is very fine, and in Lower Austria, Tyrol, Vorarlberg, and Küstenland it promises well.

Of buckwheat, the harvesting of which (first fruit) is going on, the reports from Gal are good; from the Alpine countries and those of the Karst the second fruit has come well for the greater part and has commenced blossoming.

The thrashing of rape confirms the estimate of a good crop on the average. In east Galicia it is very good, but from western Galicia the reports coming in are for the greater unfavorable. The sowing of rape, which is going on now, is unusually difficult, in co quence of the great drought.

Early potatoes, although a considerable part of them were subject to rot, still yielde rather satisfactory crop. Late potatoes, too, promise a similar yield, although in the north parts the stalks have already faded, partly in consequence of the heat and partly by the pearance of the *Peronospora infestans*. In Lower Austria and Carniola grubs have cau great damage to potatoes.

Beets, especially sugar beets, suffered considerably from heat. In the northern zo especially in Bohemia, they present frequently, if not mostly, faded leaves and small tube in some parts, also, many sprouts. However, they are for the greater part still capable recovering, and it is anticipated that their quality will make up for the less satisfactory qu tity. In Moravia (Hanna) they have been considerably damaged by the gamma (moth) in Galicia and Carniola by grubs.

In the Alpine countries (inclusive of Lower Austria) the condition of fodder beets mostly satisfactory. In the Alpine countries the stalks stand tolerably good; but, accordi to the reports of the countries of the middle zones, they are there only middling.

In the Alpine meadows, where there is but one cut of hay, the crop, taken on the who has turned out very good. The aftergrowth of the clover fields and meadows of the Alp ricts is likewise satisfactory and promises a very good yield. But the aftergrowth in the ricts of the northern zone looks very bad; in many places it is even quite burned out by heat, so as to leave no hope for a crop of aftergrass. Hence many complaints are made hese countries of want of fodder.

From Bohemia and Tyrol there are only good and very good reports concerning flax; from Moravia complaints are heard of damage done by the heat and by the caterpillar of gamma (moth).

Hop reports from Bohemia in general, and also from western Galicia and Moravia, state middling to good middling crops may be expected.

Both very good and very unfavorable reports have come in regarding the expectation of vintage in Lower Austria, so that perhaps a middling yield may be anticipated. How- r, the reports from Styria complain greatly of the peronospora and blight. Very good ectations are continuing in Tyrol, but those of Istria appear now to be rather less favora- still the vintage may be expected to be good middling to good. The shipment of pes commenced at Bozen on the 5th of August.

With the exception of the German southern Tyrol, the reports of the fruit crop are very vorable all over. In regard to plums, for the greatest part only middling or weak mid- g crops are expected; of the other kinds of fruit the crops appear to be a failure.

From Istria good reports on the condition of olives are coming in.

HUNGARY.

The Hungarian ministry of agriculture publishes the following report the condition of crops up to September 3, 1892:

The weather during the last two weeks was mostly dry, and the enormous heat continued l almost these last days. Rain occurred only here and there, and the lack of rain was rious especially to the maize plant, in regard to which a tolerable return was still antici- d two weeks ago. Now there can be expected only a weak yield in general, with the eption of the parts between the Danube and Theiss and the Theiss-Marosch area. Pulse garden vegetables do not answer expectations either. Potatoes yield a good return only e and there; for the most part the yield will probably be weak. Sugar and fodder beets eneral stand bad. Hemp and flax mostly promise a rather satisfactory return. Tobacco id to have suffered from unfavorable weather, in so far that the leaves are small; but in eral it still promises a middling yield. The vine promises only here or there somewhat a favorable return; but in general it has suffered greatly from dry and hot weather and hylloxera and peronospora. Of fruits, plums will yield a rich return.

CROPS OF THE WORLD.

According to a publication by the statistical bureau of the Hungarian nistry of agriculture, this year's wheat crop of the world amounts to be- een 744,000,000 and 755,000,000 hectoliters. That of last year was ertained to have been (in round figures) 750,000,000 hectoliters; hence re is no difference between the yields of this year and last. The surplus he yield over the want of wheat is 16,800,000 to 24,300,000 hectoliters. e rye crop may be estimated at 440,000,000 hectoliters; last year it was ut 370,000,000 hectoliters.

The committee of the twentieth international grain and seed market, d at Vienna on August 29 and 30, 1892, reported on the crops of the ious countries of the world as follows:

The picture presented to this year's international grain and seed market will be quite erent, in every respect, from that of last year's. Then there were bad crops throughout the whole of Europe and a failure of crops in Russia; then Russia closed its frontiers to export of grain, which it has opened again these latter days; then the United States, the richest crop they ever harvested, appeared as the suppliers of Europe, while this ye has housed only a middling crop; at that time, finally, there were still the high dutie imports in all the countries of the Continent; this year new trade conventions have paral the effects of the last bad crops of Europe. A glimpse at the following table will show this year, in spite of middling crops, the prices for breadstuffs show a downward tende At Vienna, Berlin, Paris, London, and New York the prices for breadstuffs are quoted day (August 27, 1892) and were quoted at the same time in 1891 as follows:

Grain.	Vienna.	Berlin.	Paris.	London.	New Yo
Wheat:	*Florins.*	*Marks.*	*Francs.*	*s. d.*	
1891	10.80	248.00	28.10	39 11	$1.
1892	7.72	153.00	....	29 9	.
Rye:					
1891	10.48	250.75	22.50	....	....
1892	6.70	139.00	14.25	....	....
Maize:					
1891	7.00	....	....	....	.
1892	5.40	....	....	....	.
Flour:					
1891	19.20	....	63.00	....	4
1892	15.50 to 16.50	....	50.75	....	2

These figures show a falling off of prices of from 25 to 50 per cent. This result is o to both the better crops that have been harvested and the concluding of trade convent which, by lowering the duties on grain, also effected a beneficial pressure on prices breadstuffs. An enlivening impulse for the development of international traffic is wa this time, for the crops show nowhere—Russia perhaps excepted—a considerable de and nowhere is there any compulsory necessity for commerce to cover that deficit as so possible. The export from Austria-Hungary can not gain in extent, for the reason th customers (Switzerland excepted), such as Germany, Alsace-Lorraine, and Italy, harv good crops, and, besides, are provided with numerous cheap offers from America. A to this there is still a great difference between the inland and the foreign prices, alth there can be but little doubt that at no distant time Austrian producers will accommodate t selves to the prices of the world's markets. To-day they are still keeping aloof, and the but little prospect that a change will be brought about by the two business days of the i national grain and seed market. Producers think they had better wait with their c as the heat and drought of the past two weeks are endangering the yield of pot beets, maize, and pulse, and likewise that of the fruit; hence there appears the possibili a greater home consumption of grain. The prospects for the export of barley are bette this Monarchy has harvested much and good qualities of barley this year. To be sure, fo countries have also had a good crop of barley; but, with prices to answer, custome southern Germany and in England will still come back again to the fine brewing barl Moravia, Bohemia, and upper Hungary.

The Neuen Freien Presse of August 29, 1892, comments as follows:

Nature has spent her gifts liberally and pretty equally to the countries of two hemisph with the exception of this Monarchy, which has rather been shortened, and of the far-exte Russian Empire, which, for the greater part, has harvested an insufficient crop.

While the crop of 1891 filled the world only with complaints of the failure of cro Europe, and America only was blessed with such an enormously rich crop as it had never vested before that time, the crops of this year form a magnificent picture of good and h some yields. The agriculturists are satisfied, and consumption looks hopefully for a che

ply of its wants, prices for breadstuffs having been reduced during the year from 30 to
per cent. Sad to say that, although the enormous fall of prices for breadstuffs has taken
ce for more than half a year, a cheapening of bread is nowhere to be seen or felt in this
narchy.

The lowering tendency of prices seems to have come to a standstill for the present, and
ch will depend on the turning out of the crops of potatoes, maize, sugar beets, and other
its of the field. The reports which, up to yesterday, reached the board of international
d and grain market nearly without any exception stated the condition of the potatoes to be
sfactory and anticipate a rarely good yield. However, in Austria-Hungary, where for
eks the tropical heat has dried out and hardened the ground, both potatoes and sugar beets
retarded in their development; still, a rain setting in soon might improve much.

Germany is in the fortunate position of looking for a crop of almost 110 per cent. The
rtage to be covered from abroad will scarcely require one-half of last year's import. France
secured about 110,000,000 hectoliters of wheat, and to cover its annual supply will want
import of about 8,000,000 or 10,000,000 hectoliters. Italy will require scarcely 5,000,000
ric centners, and England needs 19,000,000 quarters of wheat, of which more than 4,000,-
quarters are already covered by old stocks stored in the ports. But otherwise the old
cks have all been disposed of, and consumption at once has taken hold of the products of
new crop. Without doubt the United States and India will this year, too, supply the
rtage of the European grain crop; for, although Russia, with its crop of scarcely 80 per
t, will be in a position to take up the grain export again, still the fatal year 1891 has
rely interrupted many connections. A number of respectable firms who exported grain
a large scale have disappeared, and another part of the grain trade has been thus weakened
losses caused by the prohibition of the grain export, so that it will be scarcely able to in-
ere in the traffic of the world. Finally, the question of duties on import will also have
e considered; they are to-day still existing with a higher tariff rate for Russian goods,
le the three convention states (Germany, Austria-Hungary, and Italy), between each other
also for the most-favored nations, have introduced lower customs duties since March.
e commercial-political approach of Russia to Germany, which of late has been much noticed
spoken of, could not purport but next to remove the unfavorable treatment of the Russian
n on its being imported into central Europe, an attempt which hitherto has failed. Our
narchy fills but a modest place in supplying the European shortage. Compared to the
d of 520,000,000 bushels of America our surplus of 2,500,000 metric centners of wheat of
ch foreign customers could dispose, is of no significance whatever; besides, the prices al-
ed in our home markets are such as to make an import abroad appear not to be remuner-
e. Only barley may calculate on its usual customers; but even there the prices of to-day
n an obstacle to a more lively traffic, and it remains to be seen whether foreign countries
yield in the question of the price.

The crops of Europe present the following average figures, 100 being taken as the figure
a middling crop: Wheat, 103 per cent; rye, 102 per cent. The crops of 1891 were:
eat, 79 per cent; rye, 63 per cent. These figures by themselves will explain the stagna-
of business which has taken place since harvesting and the downward tendency of prices,
pite of the old stocks having been exhausted and in spite of the less rich crop in America,
le last year consumption could still calculate with considerable stock. The lessened
rest of the respective parties in this year's Vienna grain market may also be ascribed to
results of this year's crops. Besides, the appearance of the cholera in Hamburg and the
rantine measures introduced by the Governments of Austria and Hungary have lessened
number of visitors to this year's international grain market; but still the number of 5,230
tors this year, against 6,400 last year, is a surprisingly large figure. To-day, on the first
of the international seed market, no commencement of business transactions has been
le; for wheat and rye customers are wanting, and for barley buyers are awaiting cheaper
ces. The report of the board of the international grain market estimated the surplus for
ort of last year's crops to be 3,500,000 to 4,000,000 metric centners of wheat and flour

and 3,000,000 to 3,500,000 metric centners of barley and malt; this year it is estimated 2,000,000 to 2,500,000 metric centners of wheat and flour and 2,500,000 to 3,000,000 met centners of barley and malt. According to official statistics, the export of grain, flour, a malt amounted from Septenber 1, 1891, to June 30, 1892, to the following:

Kinds.	1891.				First half of 1892.	Total.
	September.	October.	November.	December.		
	Met. cent.	*Met. cent.*	*Met. cent.*	*Met. cent.*	*Met. cent.*	*Met. cen*
Wheat	140,000	60,000	41,000	41,000	286,000	568,
Rye	60,000	34,000	27,000	13,000	203,000	338,
Barley	527,000	459,000	574,000	433,000	1,285,000	3,279,
Oats	27,000	34,000	109,000	72,000	480,000	723,
Maize	23,000	29,000	265,000	426,000	826,000	1,570,
Malt	103,000	100,000	134,000	86,000	638,000	1,062,
Flour	64,000	66,000	43,000	30,000	226,000	429,
Total	944,000	782,000	1,193,000	1,101,000	3,944,000	7,969,

These figures show that the estimated export of barley for last year was almost fu reached, but that the export of wheat and flour has not absorbed the whole of the estimat surplus. This Monarchy last year had a shortage of about 8,000,000 metric centners of r so that an export of rye was not to be supposed. Still, as is seen by the above table, the were 338,000 metric centners of rye exported.* But the shortage of rye was covered wheat; hence the exports of wheat and flour fell considerably short of the amount estimate It is also seen by the figures of the above table that one-half of the total export in connecti with the new crop takes place during the months of September to December. This yea crop has been belated, so from that reason alone grain transactions could not develop as y Besides, another obstacle to the development of the grain export is formed by the differen of prices between the markets of the inland and those of the world. It is to be hoped th this difference will be leveled, and that then transactions will assume their normal phase.

The detailed reports on the crops of 1892 by the twentieth internation grain and seed market were as follows:

AUSTRIA-HUNGARY.

The grain crop of the present year has been good in Austria and middling in Hungar

WHEAT.

In Austria there were 1,111,948 hectares cultivated with wheat, yielding 17,000,0 metric centners. This yield surpasses a full middling crop, which is rarely reached in Austri A middling crop (not to be exchanged with an average crop), which we calculate at 14 metr centners per hectare, is thus surpassed by 1,250,000 metric centners. That gratifying resu is owing to the rich crops of Bohemia, Moravia, and Galicia, where—especially in Bohemia— there were some results attained such as have not occurred for the last twenty years, and als by the good middling crops of the other crown lands (with the exception of Carniola, Istri and Dalmatia). Besides, the product is of a quality which, in regard to weight, color, an otherwise, leaves little to be wished for in most of the crown lands.

In Hungary and Transylvania there were cultivated with wheat 3,013,318 hectares, which according to the estimate of the districts by our experts, have yielded somewhat abov 37,000,000 metric centners; a middling crop, being calculated on an average for Hungar and Transylvania at 12 metric centners per hectare, is thus still surpassed by a little. This no unsatisfactory result of rather more than a full middling crop is principally to be ascribed t good wheat crops of Transylvania and upper Hungary, making up for the shortages of wer Hungary and the area between Buda-Pesth and Presburg. The total yield would ve been better if in the parts last mentioned the kernel had not been frequently pressed and quality otherwise damaged by blight, etc. Good, heavy wheat of fine red and mixed or frequently occurs also in Hungary and in Transylvania; but this time it does not form by far preponderating part, as is usual with middling crops in regard to quantity.

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* The total import of rye during the above period was 42,615 metric centners.

In Croatia, Slavonia, and the Military Frontier the acreage cultivated with wheat is stated be 121,800 hectares, yielding 1,250,000 metric centners, or 11 metric centners per hectare. is is not quite a middling crop, and, besides, it greatly varies in quality; especially in Slania and Syrmia the greater part of wheat is of a pale color.

RYE.

In Austria there were 1,941,377 hectares cultivated with rye, yielding a product of about ,000,000 metric centners; if a full middling crop be taken at 14 metric centners per hece, this would make a shortage of 1,000,000 metric centners as compared to a full crop. is relatively satisfactory result, too, is chiefly owing to the good crops of Bohemia, Mora, and Galicia. The quality, taken on the whole, is satisfactory; but even in the above-ned crown lands, which have been favored in regard to quality, a good deal of rye is light weight and has suffered by rain.

In Hungary and Transylvania there were 1,185,396 hectares stated to have been cultivated h rye, yielding a produce of about 13,750,000 metric centners. Taking a middling crop 12 metric centners per hectare, this would make this year's yield not very far from a midng crop, to attain which—as with wheat—the good crops of Transylvania and upper Hunry had to make up for the shortages of many comitates. The qualities are varying. There a great many full, sound, thin-shelled, light-colored kernels; but also a good many that greatly pressed and partly rained in, and hence falling short in color and weight.

In Croatia, Slavonia, and the Military Frontier 103,089 hectares are said to have been tivated with rye, and the yield is stated to be about 1,000,000 metric centners, making s year's crop below middling. The quality of rye in regard to color is satisfactory, but satisfactory in regard to the effective weight and purity.

In Austria there were 1,124,079 hectares cultivated with rye, yielding more than 17,000,- metric centners, which, if, as with wheat and rye, a full middling crop is taken at 14 tric centners per hectare, will make a surplus of 1,500,000 metric centners as compared to ull middling crop. Bohemia, Moravia, and Lower Austria have harvested a crop above ddling; East and West Galicia, Bukowina, Upper Austria, and Styria housed a middling p; and the other crown lands were below middling. But of more importance than is the plus quantity is the quality of barley; and although in several parts the work of harvesting s effected during rainy weather, by which a part of the barley has suffered in quality, yet far the greater part of the Austrian barley is excellent in quality. Not only in the crown ds mentioned as favored in regard to quantity, but throughout Austria in general the lk of the barley crop, although not often large grained, is still, upon the whole, sound and y, white or straw colored, mild, and free from foreign mixtures.

BARLEY.

In Hungary and Transylvania 1,042,495 hectares were cultivated with barley, and, acrding to the estimate of the experts of the exchange, this year's crop will amount to ,000,000 metric centners, which, taking a full middling crop at 12 metric centners per ctare, would make a surplus of nearly 1,000,000 metric centners as compared to a full ddling crop. In regard to quality, prime and select qualities are rarer than usual; but erage qualities are frequent. The best barley of Hungary during the present year may obably be met with near Kaschau, while in Slovakei, which generally leads in respect quality, and in the parts along the Südbahn (Southern Railroad), which, as a rule, yield excellent qualities, there has been harvested no small quantity of thin and flat barley. B the color, with few exceptions, is everywhere white or yellowish, and, though the bulk this year's crop of brewing barley in Hungary and Transylvania leaves much to be wish for in regard to the mildness of the kernel, still the produce nearly everywhere proves pe fectly sound.

In Croatia, Slavonia, and the Military Frontier the cultivation of barley has been limite On 42,341 hectares there were cropped about 500,000 metric centners, which does not cor up to a middling crop. The produce is mostly free from mixtures, but the body of the barl is hard and pressed.

OATS.

In Austria there were cultivated with oats 1,893,414 hectares, yielding about 26,000,0 metric centners, which is rather less than a full middling crop; but it should be observ that the average yield is pretty equally distributed over all the crown lands. The quality satisfactory in every respect; the seed is well developed, and, with the exception of Galic and Bukowina, where oats appear to have been frequently rained in, they are of white colo

In Hungary and Transylvania 1,008,932 hectares were cultivated with oats, yielding, a cording to the estimate of the experts of the exchange, about 13,000,000 metric centne which would rather surpass a middling crop if, as last year, a middling crop be taken at to 13 metric centners for Hungary and Transylvania. The shortages in parts of the Bács, the comitates of Baranya and Pest-Pilis, and in some other districts are more than compe sated by the higher yield of Transylvania, upper Hungary, the comitat of Raab, and by tho of other counties. In quality it differs greatly, and, though the color is satisfactory in mo of the cases, yet the seed, especially in those parts with a shortage in regard to quantity, chiefly thin, which makes the effective weight inferior.

In Croatia, Slavonia, and the Military Frontier there were 111,550 hectares cultivat with oats. The yield, although varying greatly in Slavonia and Syrmia, is figured in total 1,500,000 metric centners, which, in regard to quantity, is the same as the results in Hunga and Transylvania; this is likewise the case in regard to quality.

MAIZE.

Expectations for maize in both monarchies were favorable until of late, when the enormo heat of August considerably impaired the good prospects. The same, although to a less d gree, is the case with potatoes; while the yield of pulse, which is below middling, has n been very promising in Hungary for some time.

According to our estimate of this year's total crop of both realms, it will yield the follo ing amounts: Wheat, 55,500,000 metric centners; rye, 41,000,000 metric centners; barle 30,750,000 metric centners; oats, 40,500,000 metric centners.

Regarding the quantity available for export in this Monarchy, we must repeat that it ca be stated only on the supposition of a normal home consumption. Last year, for instance, th Austro-Hungarian Monarchy had a shortage of about 8,000,000 metric centners of rye; co sequently, in order to cover that shortage, we should have had to import large quantities of ry Nevertheless, such was not only not the case, but an export of that article took place, as th state of prices induced domestic consumers to use wheat, which was but little dearer, or supply their want by maize, which was much cheaper. This shifting of the conditions of th consumption at home would naturally have its effect on the several articles exported from th Monarchy, and this was actually the case. Provided there be normal condition of the hom consumption, and taking into consideration the circumstance that, while last year the ol stocks of wheat were very large, they are only very limited this year, we think we may estimate the following quantities to be available for export from Austria-Hungary: Wheat an flour, 2,000,000 to 2,500,000 metric centners; barley and malt, 2,500,000 to 3,000,000 metri centners. What we shall be able to export of rye and oats will hardly be worth mentioning

GERMANY.

KINGDOM OF PRUSSIA.

[From the general report.—August 24, 1892.]

arge stocks of old grain are no more in store. If, in spite of the good crop of winter , we shall be obliged to import from foreign parts, there are little prospects for it now, is year's new crops are hurried to market from everywhere quicker than is usually the Prices have thereby become depressed, and are so low as not to allow import now from d.

verything being considered, we may estimate the total crop of Prussia as follows:

Description.	1892.	1891.
	Per cent.	*Per cent.*
	107	70
:		
inter	103	80
mmer	86	93
	90	97
	74	99

EAST PRUSSIA.

[From the special report.—August 18, 1892.]

he crops of East Prussia have been belated about ten to fourteen days by the abnormal veather of last summer. Provided the crops still in the field will be successfully housed, Prussia will harvest a rarely rich crop, especially of winter seed. Spring seeds have not oped fully, in consequence of the cold and dry spring. It may be assumed that East ia will be able to export of wheat and rye at least one-third more than it did last year. otato crop promises to be larger than it has been for the last ten years.

aking 100 units as a middling crop, this year's crop is estimated here as follows:

Description.	Per cent.	Description.	Per cent.
:		Peas	105
inter	108	Beans	88
mmer	85	Potatoes	120
rye	125	Hay:	
	100	Clover	85
	84	Winter	84

WEST PRUSSIA.

[From the special report.—August 16, 1892.]

his year's crop, up to the present, has yielded very good results. This is especially the vith winter wheat and winter rye, the yield of which surpasses a middling crop; large s of the latter in good dry quality have come to market already in the first days of st. Spring crops, from the very beginning of their development, had been suffering from nd cold east and north winds. As warm weather and sufficient rain did not set in be- he end of May, no favorable result of the spring crops can be expected.

arley and oats remained short in straw, and the yield of seeds will not reach a middling nor will peas, beans, vetches, buckwheat, and lupine. Rape will yield a middling but potatoes, if the weather remains favorable, will considerably surpass the usual aver- eld.

As far as can be judged to-day, the crops of West Prussia, 100 taken as a middling
may be estimated as follows:

Description.	Per cent.	Description.	Per
Wheat:		Beans	
Winter	103	Vetches	
Summer	97	Buckwheat	
Winter rye	105	Lupine	
Barley	95	Rape	
Oats	83	Potatoes	
Peas	92		

MARK BRANDENBURG.

[From the special report.—August 17, 1892.]

If a middling crop be taken at 100, this year's crop is estimated as follows:

Description.	Per cent.	Description.	Per
Wheat	105	Barley	
Rye	108	Potatoes	
Oats	80	Straw	

POMERANIA.

[From the special report.—August 17, 1892.]

This year's crop, in comparison to last year's, must be classed as very favorable in r
to winter grain, while spring grain seems to be less satisfactory. Exceptionally fine we
promoted the work of harvesting to an unusual degree, in consequence of which the see
the breadstuffs are of extraordinarily fine quality. About barley the reports vary gr
About oats and peas there are general complaints. Oilseed yielded nearly a middling
Of potatoes nothing can be said yet, as the opinions of farmers vary greatly. A middlin
being taken at 100, this year's yield may be estimated as follows:

Description.	1892.	1
	Per cent.	*Per*
Wheat	104	
Rye	105	
Barley	97	
Oats	85	
Peas	87	
Rape	98	
Potatoes	100	

PRUSSIAN SILESIA.

[From the special report.—August 20, 1892.]

Of rye, not only in regard to quantity, but also in respect to quality, Silesia has a fine
duct than it has had for many years; besides, there is no lack of long, stout straw.

Wheat is mostly still more satisfactory than rye. The steam-thrashing machine is se
full activity in the field, emptying the perfectly dry sheaves of their rich contents of ke

Rape is quite excellent, both in quantity and quality.

Spring grain had to suffer from dryness in the beginning and did not develop fully
the end of May. Harvesting, which was as favorable as that of rape, wheat, and rye,
but rarely interfered with by wet, and the barley that came into market about the begi

August showed quite an excellent, full, and light-colored kernel. Although it is not likely t the total result of our barley crop will be so favorable in regard to quality, still we have d reason to be perfectly satisfied with this year's barley crop as compared to the crops of r years.

Oats are, relatively speaking, the least satisfactory of the grain crops. The dryness after ing time has injured oats more intensely than it has barley. In all cases we shall be ged to import oats from abroad, as we have done for a large number of years, since the luction of oats in Germany does not suffice to cover the demand.

Fodder fields at the present are in a very sad condition. As advantageous as the dryness he last weeks was to the harvesting of grain, it proved injurious to lucern, clover, espar- e, saradella, and to the aftermath. Maize and meslin relatively better resisted heat and it of rain.

Potatoes, until very lately, held out the best of hopes, and the plant is still in a very good dition to-day, without any sign of disease. Still, the want of rain is forming an obstacle he development of the tuber, and a good warm rain would be very welcome.

Orchards blossomed very finely and promised a rich yield, but, without any visible reason, a very modest part of the promises proved true. Cherries and plums were satisfactory; of apples there will be only few, and pears are a failure.

Of last year's grain crops there are no stocks of any significance whatever on hand. The inconsiderable quantities of rye, and especially of wheat, which were shipped here from mburg and Berlin were all placed at the steam and water mills of the province; only e small lots of grain may be in store to be worked into flour. However, of last year's n in the warehouses of merchants, there can be absolutely none to speak of.

In comparison to the average crop of the last ten years this year's crop in Silesia is es- ated as follows:

Description.	Per cent.	Description.	Per cent.
e	90	Barley	100
eat	102	Oats	85
	100		

In the Kingdom of Prussia a middling crop per hectare is estimated as follows: Winter e, 1,148 kilograms; wheat, 1,575 kilograms; rye, 1,316 kilograms; barley, 1,442 kilo- ms; oats, 1,394 kilograms. The figures for Silesia will not vary essentially from these rage figures.

PROVINCE OF SAXONY.

[From the special report.—August 20, 1892.]

To make a reliable report on this year's crop of Saxony is very difficult, as in no year be- e were the conditions of the fields so unequal as they are this year. A good, thorough n has not occurred throughout the whole summer, with the exception of a thundershower e and there.

Rye may be generally estimated at a middling crop. It will surpass a middling crop in Altmark in the district of Magdeburg in general. In most of the government districts of urt and in the districts of Merseburg, Weissenfels, Querfurth, Mansfeld Sea, and of Saal vill fall short of a middling crop by from 10 to 12 per cent; but the whole east of the rseburg district will be from 20 to 25 per cent below a middling crop.

In regard to local conditions, wheat is similar to rye; otherwise it is still more unfavorable. rtly, especially where much Chile saltpeter was used, the yield is quite good; but in other ces it is small, and for the rest a good deal of English wheat has been frozen out.

Barley has remained small; in some places it did not ear at all. But the districts of the mark, those about Halberstadt, and the Eichsfeld calculate on a tolerable middling crop, ile the districts east of the Saale will have a great shortage.

Oats are still worse and prove nearly a failure. In the east of the province the c estimated at 55 per cent, and in the district of Schweinitz even at only 35 per cent, of a dling crop.

Peas are promising well, though the straw has remained short; still, a good yield o may be expected.

Potatoes will not turn out particularly good this year.

The yield of this year's crop may be estimated at the following figures: Wheat, 94 100; barley 92; oats, 82; potatoes, 92.

SCHLESWIG-HOLSTEIN.

[From the special report.—August 17, 1892.]

Hay and clover have yielded a rich crop; the quality has suffered in part by rain, b result in general is good. The estimated crop is: Clover hay, 108 per cent; meado 102 per cent.

Rape, in regard to quantity and quality, has done well and better than for many The estimate is 99 per cent.

Rye has developed well in seed and straw, and has attained large ears, but the q suffered afterwards from rain. The estimate is 100 per cent, against 97 per cent for last

Wheat blossomed late, so that the seed will perhaps be unequal. The straw will r short: The estimate is 104 per cent, against 99 per cent in 1891. Oats, though som thin, stand well everywhere. The yield of seeds will probably be below middling; the has remained short. The estimate is 96 per cent, against 73 per cent in 1891.

Barley seems to yield the best result of all grain crops. The estimate is 108 per against 110 per cent in 1891.

Beans have suffered here and there from caterpillars, wind, and rain. The estim the average result is 101.3 per cent.

Peas, for the greater part, are also satisfactory. The estimate is 100 per cent, again per cent in 1891.

Buckwheat did not do particularly well. The estimate is 92 per cent.

Lupines are estimated at 98 per cent, vetches at 105 per cent, potatoes at 105 per against 65 per cent in 1891.

An average crop in Schleswig-Holstein is figured as follows:

Description.	Quantity.	Description.	Qua
	Met. cent.		*Met.*
Wheat	935,935	Peas	
Rye	2,361,873	Rape	
Barley	922,250	Potatoes	3,
Oats	3,731,407		

HANOVER.

[From the special report.—August 20, 1892.]

A middling crop being taken at 100, this year's crop will prove as follows:

Description.	Per cent.	Description.	Per
Wheat	110	Oats	
Rye	125	Beans	
Barley	115	Peas	

Our old stock of wheat, like that of rye, is practically exhausted; but it has not be necessary, especially in respect to rye, to create new connections.

ls matters are to-day, an import of grain can not be thought of for the present, with the eption, perhaps, of maize and fodder barley, which are not cultivated here, but regularly orted from abroad.

Dur export this year will be limited to wheat only, which, chiefly during the fall months, take its way to the Rhine, to Westphalia, and to Alsace.

WESTPHALIA AND LIPPE.

[August 19, 1892.]

Of wheat the average yield of this year's crop is estimated at 102 per cent (86 per cent in); straw, 95 per cent.

The quality of rye is without blemish. The yield of seed is 118 per cent (88 per cent 891); straw, 90 per cent.

Of oats the yield is estimated at about 70 to 80 per cent (100 per cent in 1890); the is estimated at 80 per cent. The quality of barley is good; the yield of seed is estied at 90 and 95 per cent for spring and winter barley, respectively (it was 85 and 75 per , respectively, in 1891); straw, 90 per cent.

Beans and peas are weakly developed; the yield is estimated at 100 per cent. The g buckwheat plant suffered several times from frost; the yield is estimated in some es at 50 to 55 per cent; the estimated average yield is about 70 per cent, against 100 per in 1891.

Of potatoes the estimated average yield is 110 per cent, as compared with 95 per cent in .

The yield of rape and colza is 95 per cent, against 75 per cent in 1891. The quality is .

Of hay the yield of the first cut was scarcely 75 per cent, as compared with 90 per cent 891. The second growth was destroyed by the heat of the last weeks. Meadows and ures present a sad appearance. Fodder will surely be wanting.

HESSE-NASSAU.

[From the special report.—August 17, 1892.]

Wheat, rye, and also barley, have for the greater part been secured. The cutting of oats just begun. The weather is splendid. The quality of all the breadstuffs has not been ne for a long time. Only oats will experience a not inconsiderable shortage in regard to tity. The crop of early potatoes may be classed as excellent; late potatoes will probably l quite a good crop. A middling crop being taken at 100, the following will give the nate for this year's crop:

Description.	Per cent.	Description.	Per cent.
at	110	Oats	75
	125	Potatoes	110
y	100		

RHENISH PROVINCES.

[From the special report.—August 20, 1892.]

The reaping of rye, wheat, and oats, with few exceptions, may be considered as ended. quality is excellent. The kernel is well developed, very dry, and of fine color. The s may be figured as follows: Wheat, 100 per cent; rye, 110 per cent; oats, 90 per cent. toes promise a rich yield. All our old stocks have been nearly exhausted, and the new has at once been put to use.

KINGDOM OF SAXONY.

[August 20, 1892.]

Sooner than in other years the reaping of winter grain has begun; the harvesting wa moted by favorable weather, and the result answered the favorable development of the p Quality and quantity are equally good in regard to the yield of the seed, and only the of straw leaves something to be wished for in a few places. On the other hand, the co excellent harvesting weather, which increased to almost a tropical heat, injuriously af spring grain, potatoes, and fodder grasses. Spring wheat and barley suffered less from of rain than oats did. The good prospects for potatoes have been considerably lessene can only improve if rain sets in. Aftermath will prove but a scanty yield.

The Kingdom of Saxony, in consequence of its exceedingly crowded population, be to those countries which, even with a most favorable crop, can not supply its own de of breadstuffs, but has to import them from other parts. It is natural that with a rich like this year's the import will be less than last year's. But there are no reliable sources which to state figures; such figures would be quite arbitrary. Sometimes Saxony im from the neighboring Prussian and Bavarian provinces; at other times it takes part o foreign import into Germany, but to what amount can not be ascertained.

A good middling crop being taken at 100, this year's crop may be estimated as fol

Description.	Per cent.	Description.	Per
Winter wheat	114	Summer rye	
Winter rye	110	Barley	
Rape	112	Oats	
Spring wheat	107		

UPPER AND LOWER BAVARIA.

[August 22, 1892.]

Part of the crop suffered in quality by rain, while the grain cut later was secured d hot and dry temperature.

Wheat and rye are estimated at two-thirds prime and the other third inferior.

Barley varies in quality, but all of it is good for brewing purposes. Besides yellow k there are many of light yellow and whitish color.

Oats are fine and white, but, in regard to weight, probably will not reach expecta

Rape, of which little has been cultivated, will yield a middling crop.

Potatoes have suffered from heat and dryness during the last fortnight and will pro be of inferior yield.

A middling crop being taken at 100, this year's crop may be estimated as follows:

Description.	Per cent.	Description.	Per
Wheat	125	Oats	
Rye	115	Rape	
Barley	90		

BAVARIAN AND HESSIAN PALATINATE.

[August 18, 1892.]

The crops are of the following qualities: Wheat, satisfactory to very good; rye, unus favorable; barley, satisfactory.

Oats have not come into market yet. Some good qualities are to be seen, but from r districts it is heard that the quality leaves much to be wished for.

A middling crop being taken at 100 units, this year's crop may be estimated as follows:

Description.	Per cent.	Description.	Per cent.
at:		Rye	105
Winter	120	Barley	102
Summer	100	Oats	80

Potatoes are not very promising. Clover yielded no good result. With this year's favora- crop, our import demand for wheat and rye will be very small, although no large stocks e on hand when the new crops came in.

WURTEMBERG.

[August 16, 1892.]

A middling crop being taken at the figure of 100, this year's crop of the four districts of country will be as follows:

Description.	District.				Average.	
	Neckar.	Danube.	Schwarz-wald.	Jagst.	1891.	1892.
	102.19	107.6	100.07	106.39	90.45	104.06
at:						
Winter	96.08	100.9	98.67	103.75	84	99.85
Spring	98.48	100.5	90.67	104.28	98.18	98.48
	98.4	103.3	93.75	103.06	84.62	99.63
ey	96.23	99.7	94.67	100.28	101.4	97.72
	89.04	97	82.67	91.39	106.47	90.02
	95.33	99.07	89.55	103.18	91.36	96.78
s	90.7	102.15	86.54	100.08	94.77	94.87

These figures show this year's crop to be better in quantity than last year's; and the lity, too, is very good.

Spelt, the great grain of the country, has here and there suffered somewhat from blight, is very perfect in ears and kernels.

Winter wheat is standing excellent. Summer wheat and barley are short in straw, but seeds are very good. The greater part of barley will probably be used for brewing.

Rape is satisfactory, both in quantity and quality.

Oats are thinly scattered, the straw is short, and the yield is less than last year's.

Clover and hay are unsatisfactory. The same will probably be the case with the after- h.

Early potatoes were satisfactory. Late potatoes are sound and stand fine. The yield probably be rich.

Sugar beets, chicory, and vegetables of all kinds stand very fine.

Hops in general are of sound appearance and free from vermin. The cool nights and days, however, are injurious. The yield will probably reach scarcely half a crop.

Cherries yielded richly; apples about half a crop. Of pears and drupe there will be e; of nuts there will be many.

The vine stands excellent throughout the whole country. Grapes are free from any dis- e and are developing finely; still, there is scarcely half a vintage to be expected, so much more as the enormous heat of last week has greatly injured the grapes.

GRAND DUCHY OF BADEN.

[August 16, 1892.]

The cutting and securing of all the grain was effected during good, dry weather, so the crop is very satisfactory both in quantity and quality.

Wheat and spelt have a full, sound, floury kernel. The same is the case with Barley varies, but on the whole it must be considered satisfactory.

Oats, which are just being cut, suffered somewhat in quantity from dry weather quality is good.

The estimate of the crop, in figures, is as follows: Wheat, 100 per cent; rye, 10 cent; barley, 95 per cent; oats, 90 per cent. Potatoes promise a rich yield.

In consequence of this year's favorable crop and of the rather large stock of foreign w the demand for import will be essentially less than it was last year.

MECKLENBURG.

A very good crop in general could be anticipated, and expectations have not been d pointing.

Rye was greatly retarded. Sufficient sunshine was wanting for a vigorous develop of the kernel. The yield is very large, and thrashing seems to be of abundant result. quality in general seems to be good, too, although the weight has been impaired b weather. The estimate is 100 per cent; in 1890, 80 per cent.

Wheat holds out rich promises. The ears are full and heavy; but, in consequen rain and wind, machine thrashing will scarcely be possible. The estimate is 100 per against 85 per cent last year.

Oats did not develop so well as had been expected. Its condition varies greatly. the side of good crops there are places that suffered from frost. Ripening, too, is very une in some places it has been cut already, in others it is still quite green. The estimate per cent, against 90 per cent last year.

Barley has developed very vigorously and has been partly cut, justifying the best h The estimate is 102 per cent, against 95 per cent last year.

Peas and beans are not very promising. The estimate is as follows: Peas, 83 per against 65 per cent last year; beans, 86 per cent, against 95 per cent last year.

Meslin is much cultivated here and promises a good crop. The estimate is 93 per against 80 per cent last year.

Potatoes stand particularly good and promise rich yields, especially the early pota The estimate is 105 per cent, against 75 per cent last year.

The estimate for beets is 97 per cent, against 90 per cent in 1891.

Clover and hay in general have been well housed, and the second cut, too, promises favorable.

Oilseeds have yielded a rich crop. The estimate is: Colza, 96 per cent, against 75 cent last year; rape, 98 per cent, against 50 per cent last year.

Of old stock there is little on hand, scarcely sufficient to cover the demand until har ing will be quite done.

DENMARK.

The condition of crops is entirely satisfactory. Of barley and oats a richer yield is pected than has been harvested for many years. The estimate is 108 per cent. Rye wheat prospects are good, but harvesting will be belated, the estimate being 103 per Hay is abundant and has been secured in good condition. Beets, too, promise a rich y

An average crop for Denmark is figured as follows: Wheat, 1,760,000 hectoliters; 5,900,000 hectoliters

SWEDEN AND NORWAY.

[August 17, 1892.]

y is very good, being estimated at 100 per cent. If the weather continues fine, wheat, is cultivated only in Sweden, holds out very good promises, the estimate being 105 nt. Of rye a full middling crop is expected, the estimate being 100 per cent. Spring especially oats, is praised everywhere, being estimated at 100 per cent. Barley (esti- at 100 per cent), peas, and vetches are very satisfactory, promising rich yields, but they lated and want warmer weather for ripening.

om the provinces north of Stockholm—Upland, Gestvikland, and Norrland—night were reported in the beginning of August, doing great damage to potatoes and spring

e stocks have been nearly exhausted. Oats, too, of which only little was exported, ostly to Denmark, is running out, so that the stock on hand will not suffice to supply mand until the harvesting of the new crop will be finished.

SWITZERLAND.

[August 17, 1892.]

e crops throughout Switzerland held out good promises, which have now become pretty a fact. Rye has been nearly harvested. Wheat has been harvested only in the parts. The other grains are still in the field.

middling crop being taken at 100, this year's crop is estimated as follows:

	Per cent.
	115 to 120
	110
	115 to 120
	105

cks of old grain are insignificant, both in the granaries and in the possession of con- . Of potatoes a very good crop is expected. The vintage promises to be rich and of dinarily good quality, such as it has not been for many years. Of fruit there will be an last year, a few cold days during blossoming time having caused damage.

HOLLAND.

[August 20, 1892.]

e result of the crops may be classed as very satisfactory in nearly every respect.

wheat the crop is somewhat belated. Plowing down of a part of it was also necessary ng; still, a middling quantity was reached, while the quality is very good.

e was cultivated largely, on account of its high price last autumn, and the yield, besides, sually abundant.

rley and oats were less cultivated, but turned out good.

tatoes yielded exceedingly large quantities. They will take the first rank as a nour- t of the people.

e estimate of the crop is as follows:

	Per cent.
	100
	112
	93
	80

The estimate of the average crop and of the import required in 1892–'93 is as follo

Description.	Crop.	Im
	Tons.	*T*
Wheat	162,800	4
Rye	269,000	1

BELGIUM.

[August 18, 1892.]

Harvesting is nearly done. In some parts of the country, the crop is less in rega quantity, but in respect to quality it is so excellent everywhere that the crop of 1892 taken as an average) is estimated as follows:

	Per c
Wheat	100 t
Rye	105 t
Barley	90 t
Oats	78 t

FRANCE.

[August 17, 1892.]

To judge by the great demands which the consumption made on the import durin year from August 1, 1891, to August 1, 1892, the shortage of the wheat crop of 189 surpassed the judgment of the greatest pessimists. In spite of the large stocks, especial foreign wheat, that were in the warehouses of France on August 1, 1891, there were 14,000,000 hectoliters of wheat imported, of which this year's consumption received sc more than 3,000,000 hectoliters. The acreage cultivated with wheat this year was, as u about 7,000,000 hectares. The winter brought great cold, little snow, and withal s drought set in with spring as has rarely occurred before. In many departments of ea middle, and northern France the plants did not come up or were destroyed by frost. not insignificant losses caused thereby were partly made up by spring wheat. Spring w which was cultivated but little in comparison to the general crop, will yield only a ver ferior result—perhaps half of a usual crop. Winter wheat suffered also in most of the de ments, so that the yield of straw and sheaves has remained far below a good crop; b yield of kernels was so much the more abundant. The result of the crop may be stat reach 100,000,000 to 105,000,000 hectoliters, and in view of the prevailing excellent qua it may be estimated at 94 per cent of a good crop of 112,000,000 hectoliters. Durin year 1892–'93 we shall probably want an import of 15,000,000 to 20,000,000 hectolit wheat.

Rye and barley reached a common middling crop.

Oats suffered greatly from continued drought, and there will be a considerable sho which, however, will be lessened to a great degree by the considerable stock left of the of 1891.

GREAT BRITAIN AND IRELAND.

[August 22, 1892.]

Wheat harvesting is late this year. Though it has begun in the southern parts of land it will not be general in the north of the country before the beginning of Septen hence it is difficult to make a final report now. If changes for the worse do not take p the following may be stated: The area cultivated with wheat is, in round figures, 2,15 acres, against 2,300,000 acres last year, or less by 150,000 acres.

ccording to 325 reports that came in the following may be said:

Description.	No. of reports.	Per cent.
average	35	10.8
ge	124	38.1
average	166	51.1
Total	325	100

esides the lessened acreage, the yield per acre will also be below the average, which is
be wondered at, the weather at times having been very unfavorable. It may be as-
l that the total yield will be about 1,000,000 quarters less than it was last year. The
ocks in the ports are very considerable, viz, about 4,000,000 quarters, against 1,300,000
ers last year. The final result is likely to be that during the coming year Great Britain
ave to import 19,000,000 quarters.

barley the estimated yield is as follows:

	Per cent.
e average	50.2
ge	42.3
average	7.5

is hoped that a great deal of the crop will be of good quality, and that barley will
a better result than any of the other cereals.

he other crops may be estimated as follows:

Description.	Oats.	Beans.	Peas.	Hay.	Potatoes.	Roots.
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
average	15	5.4	12.7	7.5	44.8	24.1
e	33.3	36.1	47.5	9.7	48.6	46
average	51.7	58.5	41.8	82.8	6.4	29.9

oats the crop is decidedly scant. The crop of hay shows considerable shortage. Po-
will yield a rich crop.

this report has been added that the weather since has been exceedingly hot and dry;
he crop has been greatly hastened thereby, and the finishing of it, which will not take
before September, appears to be less endangered.

middling crop being taken at 100, the yield of this year's crop, conditionally, may be
ted as follows:

Description.	Per cent.	Description.	Per cent.
	91	Peas	88
	97½	Hay	80
	90	Potatoes	97
	88		

ITALY.

UPPER ITALY.

[August 14, 1892.]

May quite good crops were expected, as they had wintered well, and spring crops
ed their regular development; but with the beginning of June there came tropical heats
uing uninterruptedly for nearly a fortnight and damaging all the crops very badly.

The yield of wheat in upper Italy may be estimated at 75 per cent, of which two-th are of weak quality and the other third of good quality. This makes this year's yield la by 5 per cent than last year's. In the whole country there were harvested 39,860,000 he liters of wheat, leaving a margin of 5,000,000 metric centners for import. A regular aver crop is calculated at 43,500,000 hectoliters.

Of oats the yield in the whole country was 6,053,000 hectoliters, making a shortage 1,500,000 hectoliters as compared with an average crop, which is taken at 7,500,000 he liters. The crop is especially bad in upper Italy, yielding scarcely 60 per cent.

The barley yield was 2,500,000 hectoliters in the whole of Italy, making a shortage 1,000,000 hectoliters as compared to an average crop. In upper Italy, where cultivat of barley is not large, the yield is estimated at 50 per cent.

As to maize, nothing certain can be said as yet. The plant was retarded in its devel ment, has suffered greatly from the drought in June, and we might probably not be far an in estimating the yield at about 75 per cent, *i. e.*, 10 per cent less than last year's crop.

Rye was but very little cultivated in upper Italy this year; but the yield is good and figured at 80 per cent of an average crop.

Fruit, potatoes, and beans are a brilliant success, and the prospects for wine could be better.

SOUTHERN ITALY.

[August 22, 1892.]

The present year shows a shortage of about 12 per cent on the continent and of about per cent in Sicily, as compared to last year's crop; so that there have been imported into southern Adriatic regions 6,316,326 hectoliters of wheat, 1,478,717 hectoliters of mai 23,173 hectoliters of rye, and 2,140,724 hectoliters of oats during the present year.

Maize was very poor in our provinces, but abundant in the mountains.

In the southern Adriatic regions the crops were as follows: Wheat, 5,694,479 hectolite maize, 1,478,781 hectoliters; rye, 246,684 hectoliters; and oats, 1,318,492 hectoliters. Sicily they yielded: Wheat, 6,970,426 hectoliters; maize, 70,327 hectoliters; and oats, 16 230 hectoliters.

EASTERN ITALY.

[August 21, 1892.]

The wheat yield is 85 per cent, or 15 per cent less than a middling crop. Maize yield 90 per cent, or 10 per cent less than a middling crop. Of oats there is a middling cr The millet crop is regular and of good qualities. Beans are a very weak crop.

Rice is good as yet, but in some places there are complaints of rust caused by fogs, whic if continued, may lessen the prospects for a good crop by nearly one-half, as harvesting do not take place before the beginning of September.

CENTRAL ITALY.

[August 20, 1892.]

In general there are complaints of a lessened yield in quantity, caused by too much ra and rime. These complaints are more frequent in the plains than in the hill lands, so th on the whole, there will be only about 40,000,000 hectoliters. The qualities are good, a it is full grained and well ripened. The crops of the several zones are stated as follows, t quality being good in each case: Tuscany, 70 per cent of a middling crop; Umbria, 80 p cent; Maremma, 70 per cent; Romagna, 90 per cent; Abruzzi, 85 per cent.

The maize crop will probably be like last year.

SERVIA.

This year's wheat crop will vary greatly, as in one and the same district the yield p hectare frequently varies from 6 to 13 metric centners, and the weight per hectoliter from 7 to 78 kilograms. In many places wheat has suffered from rust and hard rains.

The acreage of this year, surpassing that of the normal acreage (215,000 to 220,000 hec- es) by 15 to 18 per cent, the yield will be larger than last year's. For the season from gust, 1892, to July, 1893, the quantity of wheat for export from Servia may be estimated 900,000 metric centners.

Rye turned out very well. The estimated quantity for export during the coming season 90,000 to 100,000 metric centners.

Oats and barley gave a tolerably good yield, although barley has suffered in color from ns. The estimated quantity of oats and barley for export is 150,000 to 160,000 metric ntners.

The condition of the maize fields is excellent.

A middling crop being taken at 100 units, this year's yield may be estimated at:

	Per cent.
heat	105
e	120
ts and barley	110

Old stocks are quite exhausted. The export has already commenced.

Plums promise to be better in quality than they were last year, but are said to be behind quantity as compared to last year. In consequence of large stocks of brandy and alco- , the plums available for export from Servia during the coming season may amount to m 210,000 to 220,000 metric centners.

ROUMANIA.

JAKOMITZA.

[August 19, 1892.]

In this district much more wheat has been cultivated this year than ever before. The ps had wintered well and promised a rich yield, but the scorching heat of June and the nt of rain, together with blight and rust, have damaged the quality; a large number of kernels shriveled and ripened when not yet sufficiently developed. On the other hand, ing crops, barley excepted, are excellent, and maize especially promises an unsurpassed ld.

Wheat is satisfactory in quantity, yielding 20 to 25 hectoliters per hectare; the crop may considered middling. The quality, as stated before, has suffered. There are many rusty, l also thin and imperfectly ripened, qualities. In this district both quality and quantity y in a striking manner. There are places yielding from 25 to 32 hectoliters of fine, clean eat per hectare, weighing from 77 to 81 kilograms, and there are other places which did yield half of that quantity, being withal without color, of light weight, and rusty.

Rape was cultivated in large quantities, wintered well, but was greatly damaged by rime l by worms. The yield is inconsiderable.

Rye was cultivated in larger quantities than last year, in consequence of the high price of t article last year. The yield is estimated at 10 per cent above middling; in quality it is nerally weak, with thin, shriveled kernels of dark color, having a weight of 64 to 69 kilo- ms per hectoliter.

The barley yield is 15 to 20 per cent below middling. The quality suffered by much n. The kernel in general is dark and yellow, the weight varying from 55 to 64 kilograms hectoliter.

Oats throve well for some time and would have yielded an exceedingly rich crop if the pical heat had not shriveled the kernel during its formation. The yield, both in quality l in quantity has remained below that of last year.

The acreage cultivated with beans has been less than last year's acreage, but the yield is ter in regard to quantity; the quality, however, has been impaired by much rain, and there many spoiled and unripe seeds. A pretty large old stock is on hand, and export has eatly neglected that article.

Millet is beautifully developed, yielding a crop of 20 to 30 per cent above middlin of fine, heavy quality.

Maize is promising an especially rich yield.

Of the stocks of last year there remained unsold 10 per cent of the wheat crop, be some beans and a small lot of maize.

LITTLE WALLACHIA.

[August 16, 1892.]

The wheat yield is very good, and may be classed as good middling, with an average of about 800 kilograms per pogon. But the quality leaves much to be wished for. Be the large amount of wheat that has been beaten down and yields only weak, pressed ke weighing 68 to 72 kilograms, frequent rains have prevented the drying of the sheaves i field; and by far the greater part of the wheat thrashed as yet is of tough, pale quality, w ing 70 to 74 kilograms, and requires at least four more weeks of manipulating to be being transported.

Rye yielded a good middling crop of about 500 kilograms per pogon, the quality satisfactory and the weight 69 to 73 kilograms.

The barley and oats yield is good, being about 600 kilograms per pogon.

Maize holds out the best of expectations; provided the favorable weather will cont there will be a yield of at least 1,000 kilograms per pogon. Old stocks of maize are ol able only off Danube landing places, and even there only in very modest quantities.

Of rape the yield is weak and of miserable quality.

A middling crop being taken at 100, this year's crop is estimated as follows:

	Per
Wheat	
Rye	
Barley and oats	
Rape	

COVURLIN.

The estimated yield of the crop of 1892, in comparison with 1891, is as follows:

Produce.	Acreage in 1892.	Estimated yield in 1892.	Yiel 189
	Hectares.	*Hectoliters.*	*Hectol*
Wheat	22,090	360,000	26
Rye	20,600	300,000	22
Barley	17,649	250,000	27
Oats	4,768	85,000	9
Rape	800	4,500	
Millet	1,307	9,000	
Maize	37,128	300,000	27

TUTOVA.

[August 16, 1892.]

Thrashing having been nearly finished, the crop, which varies greatly and in some pl will scarcely return the seed, may be stated to be as follows:

The yield of winter wheat is 10 to 15, rarely 18, hectoliters per hectare, against hectoliters in 1891. It is of weak quality, the kernel being shriveled and in part rusty. yield is below middling.

The rye yield is 12 to 15 hectoliters per hectare, against 12.9 hectoliters in 1891; qua good; kernel, whitish gray and small; yield, middling.

Of barley the yield is 20 to 25 hectoliters per hectare, against 30.1 hectoliters in 1891; ity, weak; kernel, grayish, some whitish; yield, weak middling.

The rape yield amounts at most to 20 railroad carloads. The produce is about the same ast year, *i. e.*, weak.

Beans are satisfactory.

Maize promises a rich yield.

Wine prospects are favorable.

Aftergrass, in consequence of frequent dryness, was very weak, which may prove fatal to keeping of cattle during winter.

There may be on hand a stock of 15,000 hectoliters of last year's wheat.

ARGES, BUZEN, DAMBOVITZA, MUSCEL, AND PRAHOVA.

[August 16, 1892.]

Winter crops were retarded by extraordinary and continued drought; but the apprehen- s that all the crops would be destroyed proved groundless, as the crops developed finely er the sheltering snow cover. The tilling of spring seeds was effected under favorable ices; but, in consequence of the drought setting in in April, barley and oats were suffer- and were but thinly scattered, while, on the other hand, the weather proved favorable ne development of maize. Prospects in general were favorable in spring. Harvesting menced on June 20, and, with short interruptions on account of rain, was quickly finished.

Rape had been cultivated to a rather large amount, but suffered so much from last year's ght that the greater part had to be plowed down in spring. The yield is 25 below a lling crop of 100 units.

There were prospects of a very good wheat crop, but afterwards rust set in, which in some es also seized the ears, so that the yield was lessened in quality and quantity. Both the ng and the first thrashing were begun in rainy weather, so that a part of the wheat is wet must be prepared in warehouses to be salable. Thrashing at a later time was performed ng dry weather, so that the wheat could be housed in a dry condition. Although the l differs greatly, still a good middling one may be calculated on at the figure of 80 of a lling crop of 100 units.

Rye has been little cultivated. The quality is good. The yield is 60 below 100. Rye eing thrashed at present.

As to barley and oats, thrashing has commenced, and these products, too, have suffered uality from rain. The yield may be estimated at 60 below 100.

A very good yield of maize may be calculated on.

The thrashing of millet has just begun. A good middling crop, both in regard to quality quantity is expected.

BRAILA AND JALOMITZA, PUTNA, RIMNIK-SARAT, AND TEKUTSCH.

[August 16, 1892.]

The acreage cultivated with grain in Braila and Jalomitza districts is estimated at 460,000 ares, as follows: Wheat, 78,000 hectares; maize, 150,000 hectares; and barley, 180,000 ares. Rye and oats were little cultivated in these two districts, viz, in the Braila district t 15,000 hectares and in Jalomitza district 22,000 hectares.

This year's yield of the crops in general is satisfactory. The yield of wheat in the Braila ict was 17½ hectoliters per hectare, against 14 hectoliters in 1891; in Jalomitza, 19 oliters, against 14 hectoliters in 1891. The quality for the greater part is good, but partly from wet. The yield of rye in Braila was 18 hectoliters per hectare, against 12 to 14 oliters in 1891; in Jalomitza, 17 hectoliters, against 11 hectoliters in 1891. It was of l quality. Of barley the yield in Braila was 24 hectoliters per hectare, against 19 to 21 oliters in 1891; in Jalomitza it was 27 hectoliters, against 21 to 24 hectoliters in 1891. quality it was pretty good. The yield of oats in Braila was 30 hectoliters per hectare, nst 20 hectoliters in 1891; in Jalomitza, 32 hectoliters, against 26 hectoliters in 1891. The ity was good. Of millet only a little was cultivated, and that was for home consumption.

The rape crop was almost entirely destroyed in spring. Maize in both the districts stan excellent this year. A very rich yield is expected.

A middling crop being taken at 100, the crops in the district of Braila are thus figured:

Crop.	1892.	1891.
	Per cent.	*Per cen*
Wheat	102	
Rye	108	
Barley	108	

The yield in the district of Jalomitza is more favorable by a small percentage, both regard to quantity and quality.

At the end of July 452,650 hectoliters of cereals were in the granaries of Braila.

In the districts of Putna, Rimnik-Sarat, and Tekutsch there were cultivated with whe about 66,000 hectares; rye, about 26,000 hectares; barley, about 53,000 hectares. T yield per hectare was as follows: Wheat, 14 hectoliters of good average quality, against hectoliters in 1891 of middling good quality; rye, 11 hectoliters of middling quality, agai 8 hectoliters in 1891 of bad quality; barley, 16 hectoliters of good quality, against 11 hectolit in 1891 of middling quality.

A middling crop being taken at 100 will give the following figures:

Crop.	1892.	1891.
	Per cent.	*Per ce*
Wheat	112	
Rye	90	
Barley	115	

This makes the crop of 1892 a good middling crop, as compared with the bad middli crop of 1891.

Of last year's grain crop hardly any stock is on hand for this year's campaign. Alm the whole produce of grain is at once forwarded to the ports of the Danube; only about h of the maize is retained for local consumption.

MOLDAVIA.

[August 16, 1892.]

This year's crop yield of Moldavia in general is by no means satisfactory, and will scarce be a weak middling crop. The acreage of this year appears in general to be less by 15 to per cent than that of last year. Relatively more satisfactory are the yields of the districts Bacau, Roman, Suczawa, and Neamtz. While Bottuschau and Dorhoi have a weak middli crop, Jassy, Vaslui, Falcin, and also the other parts of Moldavia have a very unsatisfactory yiel

Of wheat the acreage was 235,000 hectares, as compared with 280,000 hectares in 189 The estimated yield is about 3,100,000 hectoliters, against 4,900,000 hectoliters in 189 making 13⅕ hectoliters per hectare, or about 75 per cent of a normal average crop. T quality is weak middling; most of the kernels suffered from rust. Test thrashing yielde mostly 70 to 77 kilograms per hectoliter; heavier sorts will rarely be met with here.

Rye is unsatisfactory throughout Moldavia, Neamtz district perhaps excepted. In son places the crop has been entirely ruined. The acreage is about 22,800 hectares, compare with 28,500 hectares in 1891. The estimated yield is only 70,000 hectoliters, as compare with 250,000 hectoliters in 1891, which will scarcely suffice for seed and consumption, ar leaves nothing for export. The average yield per hectare is only 8 hectoliters, hence scarce 50 per cent of a middling crop.

Of oats only a weak middling crop is to be expected—15 hectoliters per hectare, or abo 85 per cent of a middling crop. The quality is satisfactory.

Barley is weak middling, both in regard to quantity and quality. The average yield is out 12 hectoliters per hectare.

Maize is standing excellent, promising quite an extraordinary yield.

Hay and fodder turned out bad, in consequence of continued drought. In some places k of fodder may be expected.

The vine is very satisfactory, promising an excellent vintage.

By the excellent crops of Wallachia the shortage of Moldavia will be made up in part, d the total aspect of this year's crop of Roumania will be far more favorable.

GREAT WALLACHIA.

[August 15, 1892.]

Great Wallachia comprises the following districts: Ilfov (Bucharest), Vlasca (Giurgevo), leorman (Turnu Magurele), Olt (Slatina), Arges (Pitesti), Muscel (Ploesti), Buzeu (Buzeu), mnic-Sarat (Ramnic-Sarat), Braila (Braila), Jalomitza (Calarasi).

Wheat and rye wintered well. Rape suffered in autumn by continued drought, and, in te of later rains, could not recover. Barley, oats, and maize were much cultivated in ing, especially as the greater part of the rape was plowed down and replaced by maize. consequence of the weather, the ripened grains vary greatly.

As mentioned before, the cultivation of rape was reduced to a small area, and this, too, lded a weak result, scarcely to be estimated at 70 per cent of a middling crop. In conquence of rain during harvest time, the quality in some places leaves much to be wished for.

Of wheat the estimated crop is 25 per cent more than a middling crop. A large part is ellent in quality, weighing 78 to 81 kilograms per hectoliter. Some part of the later ashing has lost in color and weight, weighing only 74 to 78 kilograms per hectoliter.

Not much rye is cultivated, and only in a few districts. The result is the same as with eat, with the difference that the yield is to be estimated at only a middling crop. Old cks were exhausted long ago.

Barley is a full middling crop in regard to quantity. A part of it suffered in quality (color) rain, which, however, does not exclude the occurring of light-colored, heavy qualities ighing 63 to 65 kilograms per hectoliter.

Oats have done well. The yield is 40 per cent more than a middling crop, and the lity will vary.

Of millet the quantity and quality are good. The maize plant stands excellent and proms very much. The acreage being larger this year than usual, one of the richest crops of s country is calculated on.

RUSSIA.

COURLAND AND LITHUANIA.

[August 20, 1892.]

The crops of these governments at present promise to be good. Rye is now being harted, and is favored by very fine weather. It is said to thrash well and to be of excelt quality.

The reaping of wheat, barley, and oats will begin in about a fortnight. As far as can be ged at present, the following may be said: Wheat, only small acreage, 100 per cent; rye, erage about 90 per cent, weight 119 to 120 Dutch pounds; barley, up to 100 per cent; s, particularly good; hay and clover, excellent; potatoes, middling good; flax and hemp, ellent.

RUSSIAN POLAND.

[August 18, 1892.]

Last year's bad crops and the great quantity requisite for consumption caused a reduction the seed for sowing and a lessening of the acreage cultivated. Still, the yield of the crop, twithstanding the continued drought, especially in the northern governments (Lomza, walki, and Siedlec), is a good one almost without any exception.

A middling crop taken at 100, the crops of 1892 yielded the following results:

	Per ce
Wheat	
Rye	115 to
Barley	
Oats	

Rye and barley are particularly fine, their quality and heavy kernel being very satisfac Wheat has suffered from blight in many parts. Oats are the least good crop in regar quality and quantity; the yield of straw is good. The first cut of hay and clover pr abundant. Potatoes did well, but will suffer considerably if rain does not set in. Prosp for sugar beets are favorable. Peas are often worm-eaten, representing a crop below middl

BESSARABIA.

[August 15, 1892.]

In consequence of continued drought, the autumn of 1891 was very unfavorable to wi crops. During winter there was only very little snow; and as during spring, too, with exception of small, transient showers, the dryness continued until June, with high w prevailing for weeks, it was to be presumed that the crops would not be satisfactory. export of grain, maize perhaps excepted, will take place from Bessarabia.

Rape is totally wintered out; wheat and rye are partly wintered out and in part h come up irregularly.

A good crop taken at 100 units, the crop of the whole government may be estimated follows:

	Per c
Wheat and rye (2 to 3 tschetverts per dessiatine)	
Barley and oats (3 to 4 tschetverts per dessiatine)	
Maize (5 tschetverts per dessiatine)	

In the districts of Bender and Akkermann the seed for sowing, with the exceptio maize, has not been recovered.

Hay could be cut only in the lower parts situated near the rivers, and only little c there. Straw has remained small, so that there will be want of fodder in winter. The age will be inferior, too.

Stocks of grain, small lots of maize excepted, are exhausted. What there is of wheat rye is used up by the steam mills for home consumption.

KHERSON AND YEKATERINOSLAV.

[August 19, 1892.]

In the parts near Odessa the crop of winter wheat is very weak, but the quantity is m up in part by the good crop of spring wheat (*ghirca*) obtained, especially in the eastern di tion. The latter, however, according to the present samples, appears to suffer much from

Of rye, too, there are no considerable quantities in the government of Kherson; h ever, along the Dnieper, a good result has been attained, and the latter country in gener better off in regard to grain then the region near Odessa.

Barley yielded a pretty rich result. It was first of light color without blemish, but fered afterwards by rain, and is now mostly turned yellow. On the other hand, the r that damaged the quality of the cut grain have bettered the endangered condition of maize

The weight of wheat is pretty high; that of rye can not yet be ascertained on acco of want of large supplies; barley is chiefly middling.

Taking an average crop at 100 units, the crop, as far as can be judged at present, be estimated as follows:

	Per c
Wheat	
Rye	
Barley	1

PODOLIA.

[August 17, 1892.]

According to the present results, the crops may be judged as follows:

Wheat is fresh and full in kernel, fine of color, and heavy in weight. The yield per h is 7 to 8 metric centners.

Of rye the yield is weak—5 to 6 metric centners per joch. The quality is satisfactory.

The barley yield is weak, being 5 to 6 metric centners per joch. The rain during harting has lessened the quality. The color is mostly dark. There will probably be little wing barley of light color.

Oats promise the same result as barley. The kernel is mostly of dark color.

Peas give a very good result. The quality is fine. The yield is 7 to 8 metric centners joch.

Beans are a failure.

Rape and linseed are bad, the yield being scarcely 3 to 4 metric centners per joch.

Of clover little was harvested. It reaches scarcely one-half of last year's crop.

Potatoes and sugar beets are fine, promising a good crop.

A middling crop being taken at 100, this year's crop may be estimated about as follows:

Crop.	Per cent.	Crop.	Per cent.
eat	75	Oats	60
e	65	Peas	80
ley	60		

Of old stocks there are none on hand.

NORTHERN RUSSIA—LIVONIA, VITEBSK, VORONEZH, AND TAMBOV.

[August 20, 1892.]

In northern Russia the rye crop is satisfactory and essentially better than might have n expected. Wheat is less satisfactory. Summer grain could not be sowed until late, l it promises the same crop as last year.

In Livonia the seed had also wintered well, justifying the best of hopes. But the cold, ny, and windy weather of June was not very favorable to the winter crops then in blos. Especially the crops in the district of Walk have suffered from superabundant rains. e fields were thoroughly wet, thereby causing the straw to turn yellow in many places. e development of potatoes was also hindered by the wet, and rotting was caused here and re. Hay could not be cut before the middle of June, while usually this always was the e before St. John's day. Although the grass grew well, the hay does not promise to be od in quality on account of the unfavorable weather. In the other districts of this governnt rye and wheat are more satisfactory than last year, and a better yield of summer grain is ected.

In the government of Vitebsk the crops, both of winter and summer grains, are essenly better than last year's.

In the government of Voronezh winter grain, as it was last year, is this year a total fail. After the continued drought of spring the weather changed suddenly in the last days May and abundant rains fell, without improving the bad condition of the winter crops. nter wheat suffered most, and in the southern parts the fields had to be plowed down and vn with summer seeds. Though the spring seeds had come up weak in the beginning, y improved considerably by the rains during May; so that, on the whole, a better yield spring crops may be expected.

In the government of Tambov, the winter seeds had sprung up satisfactorily and were reshed by the rains of April, and spring crops, too, could be sown during favorable weather.

In some of the districts, as in Borissoglebsk, good, heavy rye has been harvested, and in so places 100 poods were reaped from 1 dessiatine.

By reason of last year's failure, acreage in general has been smaller, because cattle a seed grain were partly wanting.

An average crop being taken at 100, the average yield of this year's crop in the abo districts, without taking into consideration the lessened acreage, may be estimated as follow

Per ce

Rye..

Wheat...

Barley and oats..

CENTRAL RUSSIA—KIEV, VOLHYNIA, KOORSK, OREL, POLTAVA, CHERNIGOV, AND KHARKOV.

[August 13, 1892.]

For many years there has not been so bad a crop as there is this year. Only a few regio that had rain in April will yield a full winter crop, while summer grain almost everywhe without any exception, has failed. Straw is wanting everywhere, too, as the tropical h and the want of rain prevented the plants from growing. A great deal of grain ripened quickly, and since the memory of man harvesting did not begin so soon as it has done this unlucky year; still, it is impossible to state reliable figures for the crops at present, every statistic is wanting and the crops vary uncommonly. Taking a middling crop at figure of 100, this year's crop may be estimated as follows:

Government.	Wheat.	Rye.	Barley.	Oat
Kiev	65 to 75	65 to 75	35 to 40	50 t
Volhynia	75 to 85	75 to 85	40 to 50	55 t
Koorsk	50 to 55	60 to 70	35 to 45	55 t
Orel	45 to 55	50 to 60	35 to 45	55 t
Poltava	35 to 45	45 to 55	35 to 45	45 t
Chernigov	65 to 75	60 to 70	45 to 55	65 t
Kharkov	40 to 50	45 to 55	40 to 50	50 t
Average for central Russia	60 to 65	65 to 70	40 to 50	60 t

Oilseeds were no better than breadstuffs. Rape reached scarcely one-fourth of a comm middling crop. Beets and linseed promise at most half a crop.

The stocks of grain, especially of wheat, though not so large as usual, are not incons erable.

KHARKOV.

[August 2, 1892.]

In spite of the failure of the winter crops, the yield of this year will reach a middling cr thanks to the good result of the spring crops, although insects and continued droughts had injurious effect.

A middling crop taken at 100, the following results may be stated: Spring wheat, ab 100 per cent; barley, above 100 per cent; oats, 100 per cent; winter wheat, 75 per ce rye, 75 per cent.

ESTHONIA.

[Revel, August 17, 1892.]

As compared with former years, vegetation is backward at least from three to four wee

Since the beginning of spring there was almost uninterrupted cold and rainy weath retarding the whole vegetation. Winter rye has resisted best, but is not yet cut.

To judge now, even approximately, of the results of spring grain would be very hazardo In order to attain ripeness, summer must last at least one month longer and be free from fr two circumstances which, although they have happened together, are of very rare occurren Clover and grass grew satisfactorily, but on mowing were spoilt to a greater or less degree daily rains. The securing of clover has not yet been finished in many places.

ne hundred being taken as a middling crop, this year's crop may be estimated at:

	Per cent.
er rye	60 to 70
er	80 to 90
low hay	75 to 80

pring rye, barley, and potatoes are very backward. The final result will depend en-on the weather of the next few weeks.

CONGRESS POLAND.

[August 18, 1892.]

middling crop being taken at 100, this year's crop may be estimated as follows:

	Per cent.
at	100
	100
y	100
	70

he acreage for these grains may be regarded as stable, changes rarely occurring.

fter so very bad a year as the last was, a mistake in estimating may easily occur, so much ore as rains were not equally distributed, and the final results vary greatly.

he cutting of meadow hay and first cut of clover were not unsuccessful, and the harvest-f rye and wheat were favored by very good weather. Rye is particularly fine colored eavy; it frequently shows the weight of 130 pounds. In some parts trial thrashing of middle-sized rye sheaves yielded 60 kilograms of kernels and more. Wheat, though d harvest, is suffering here and there from rust. Barley is very fine in color, full, and . More care is turned to the cultivating of barley with each year, and finally we have ght it to fine brewing barley. Oats, although fine in color, have not answered expecta- The straw is short and the kernel light. Rape remained below middling. Many fields were plowed down in the spring. Potatoes want a good rain. If the weather is able a full middling crop, and more perhaps, may be expected.

KOVNO, GRODNO, VILNA, MINSK, VITEBSK, SMOLENSK, AND MOHILEV.

[August 18, 1892.]

he results of the crops can only be given approximately. In general, the rye crop and reater part of the winter wheat crop are very favorable.

middling crop being taken at 100, this year's crop may be estimated as follows:

Government.	Wheat.	Rye.	Barley.	Oats.
o	100	90	105	115
o	110	115 to 120	95 to 100	95 to 100
	100	100	110	100
	110	115 to 120	115	110
k	100	105	100	100
nsk	105	110	95 to 100	95 to 100
lev	110	115	90 to 95	90

eports on pulse, buckwheat, and linseed are very favorable up to the present.

KHERSON, YEKATERINOSLAV, POLTAVA, AND SOUTHERN PART OF KIEV.

[August 20, 1892.]

large part of winter grain was ruined and had to be plowed down and replaced by g seeds.

Vinter wheat will be a small yield. It is partly bad and partly middling, on an average ps 60 per cent of a middling crop. The quality would have been fine had it not suffered considerably from continued rains during harvesting, causing the loss of a certain of the small yield. Summer wheat in the southern parts of the government of Kherson in the government of Yekaterinoslav will yield a better crop; the average is estimated a per cent, while in the governments of Kiev and Poltava it is not estimated above 50 per c

Rye is bad and will scarcely reach 40 per cent of an average crop; only the governm of Yekaterinoslav will have a better result.

Barley has done best of all the grains. Part of it will probably yield above 100. Du cutting it was of excellent quality, but suffered afterwards from rain.

As to oats, the results are unknown as yet.

Oilseeds have been a failure.

In general, it can not be stated yet what damage the continued rains during harves have caused to grain. Only of late more constant weather has set in, making it possibl begin with thrashing. More exact results will not be known before the lapse of thre four weeks.

EGYPT.

This time we have unfavorable crops. This comes quite unexpectedly, as the reached its full height (22⅝ pics) and the crops in the fields held out the best of promi With the thrashing there came disappointment, and we have more reason this year than e before to complain of the total lack of reliable official reports on the condition of crops this shortcoming causes a considerable damage to our trade and to the country in gene The incorrect optimistic reports in the beginning of spring caused a few business houses make large sales in foreign parts, and now, in order to fulfill obligations, they must m higher offers than buyers make for consumption, thereby losing their money and caus dearness in the country.

The cause of the failure of the crop is not quite evident, but may be ascribed to the southern winds (*hamsin*) occurring this year more frequently than usual. Plants requir more heat or more able to withstand it throve well, not only cotton and sugar cane, but beans, which always yield a satisfactory, if not a brilliant, crop.

Of wheat a smaller crop than last year's by fully 15 per cent is expected. The expor the crop amounted to 850,000 metric centners. With the beginning of the new crop th still remained in the country 100,000 metric centners of the old crop. With regard to present crop the quantity available for export is estimated at not above 200,000 metric ce ners, unless a larger import of foreign wheat or flour takes place.

Beans in upper Egypt are somewhat above middling; in lower Egypt they are not sa factory, so that the north must draw its supplies from the south. On an average they about 10 per cent less than the last crop, of which 1,650,000 metric centners were export The quantity available for export may be estimated at 1,225,000 metric centners.

The winter crop of maize, which begins in December, was about 5 per cent less than year; 250,000 metric centners of it have been exported, but that export has not been ju fied, as there will now be the necessity of importing maize to cover home consumption u the coming in of the autumn crop.

Barley is a failure. There is scarcely one-half of last year's crop, of which 250,000 m ric centners were exported, leaving a stock of 20,000 metric centners. There is none availa for export this year.

As to lentils, there are unfavorable reports from the interior, and it is about 15 per c less than last year. The export of last year's crop was unusually large, reaching 150,0 metric centners and leaving a stock in the country of about 5,000 metric centners. The qua tity available for export this year will scarcely reach 50,000 metric centners.

 middling crop being taken at 100, this year's crop may be estimated as follows:

Crop.	Per cent.	Crop.	Per cent.
t	80	Barley	90
	105	Lentils	90
s	100		

BRITISH EAST INDIA.

he wheat crop of 1891–'92 was, in spite of the good prospects at the beginning, decidedly
orable, taken on the whole, and especially so in regard to northern India.

a the Punjab the early rains were sufficient and the acreage extended. Up to the middle
nuary the condition of plants was sound, but the winter rain not setting in and the ab-
ally high temperature of March and April caused great damage to largely extended areas;
at the crop, which at first promised to be above the average, has now become one of the
that this province has had for years.

a the Northwest Provinces and Oudh the early rains were less satisfactory than in the
ab, and the acreage in no case surpassed the normal one. Though the winter rain was
d in time, still it brought sufficient humidity in February, and an extraordinarily good
seemed to be sure. These hopes, however, were disappointed to no small degree, as in
h and April unusually hot winds occurred, badly damaging wheat, especially in the
rn districts, where it ripens at a later time.

a Bengal, the year was unfavorable from the beginning to the end. The dry weather,
ately continuing from October till the middle of February, was a hindrance to sowing
revented the growing of the plants. The rains, which set in late, could not make good
had been spoiled, and, finally, the hot south wind, which is so very pernicious, also set in.

a the Central Provinces less had been cultivated on account of the rain not setting in.
rmal dryness, lasting from October to January, contributed to influence the condition of
s most badly. In February rain set in, holding out better prospects, and in some parts
country even a full crop might be calculated on. But the early hot winds dried up the
t kernel, and the crop must be called a bad one.

a Berar the state is the same in every respect as it is in the Central Provinces.

a the presidency of Bombay northern Daccan displays good fields and favorable crops
it has been irrigated. In southern Daccan, where dryness nearly caused a famine, the
are simply a failure. In Sind, irrigation was very deficient, and, in spite of a larger
ge, the crop is bad.

a the whole of India, that is, for those provinces and states from which reports are at
the acreage shows a decrease of 2,456,000 acres (9.2 per cent) as compared with the
l average and a decrease of 2,488,000 acres (9.3 per cent) as compared with that of
year. The acreage and yield will be seen from the tables below. The general result
be stated as follows: In the three chief grain-growing areas, *i. e.*, Punjab, Northwest
nces, and Central Provinces, the acreage shows a decrease of 910,000 acres as com-
with a normal year and of 1,900,000 acres as compared with that of last year, which,
ver, was unusually large; the yield of wheat shows a shortage of 650,000 tons (19.2
ent) as compared with an average crop and a shortage of 1,018,000 tons (20.8 per cent)
mpared with last year's crop.

he normal average yield of an Indian wheat crop is estimated at 6,737,000 tons; last
s crop yielded 6,876,000 tons and this year's only 5,442,000 tons.

Table showing the acreage and increase or decrease of the wheat crop of the different provinc of India in 1891 and 1892.

Provinces.	Acreage.			Increase or decrease a compared to—	
	Normal.	1890-'91.	1891-'92.	Normal.	Last year
	Acres.	*Acres.*	*Acres.*	*Per cent.*	*Per cent.*
Punjab	6,468,000	7,074,000	6,224,000	− 3.7	−12
Northwest Provinces and Oudh	4,847,000	5,207,000	4,695,000	− 3.1	− 9.
Central Provinces	4,271,000	4,294,000	3,751,000	−12.1	−12.
Bombay	2,566,000	2,393,000	2,145,000	−16.4	−10.
Sind	363,000	472,000	475,000	+30.8	+ 0.
Berar	915,000	817,000	887,000	− 3	+ 8.
Bengal	1,661,000	1,504,000	1,190,000	−28.3	−20.
Rajputana	1,819,000	1,507,000	1,471,000	−19.1	− 2.
Other	3,634,000	3,308,000	3,250,000	−10.5	− 1.
Total	26,544,000	26,576,000	24,088,000	− 9.2	− 9.

Table showing the yield and increase or decrease of the wheat crop of the different provinc of India in 1891 and 1892.

Provinces.	Yield.			Increase or decrease a compared to—	
	Normal.	1890-'91.	1891-'92.	Normal.	Last year
	Tons.	*Tons.*	*Tons.*	*Per cent.*	*Per cent.*
Punjab	1,752,000	2,071,000	1,392,000	−20.5	−32.
Northwest Provinces and Oudh	1,656,000	1,745,000	1,579,000	− 4.6	− 9.
Central Provinces	950,000	910,000	737,000	−22.4	−19
Bombay	976,000	553,000	428,000	−36.7	−22.
Sind	184,000	197,000	116,000	−36.9	−42.
Berar	121,000	95,000	80,000	−33.8	−15.
Bengal	432,000	400,000	250,000	−42	−37.
Rajputana	524,000	395,000	362,000	−30.9	− 8.
Other	435,000	510,000	493,000	+14.5	− 2
Total	6,727,000	6,876,000	5,442,000	−19.2	−20.

This year, in contrast with most of its predecessors, was characterized by especial drynes the pernicious consequence of which made itself felt particularly in the central part of th presidency of Madras, in Bombay, Deccan, Rajputana, Bengal, and in Burmah. Into thes parts a lively import of breadstuffs took place, consisting almost exclusively of rice and mil let, partly because the population there does not consume any wheat in general and partl because wheat is the dearest of breadstuffs. To these rice and millet imports the chief wheat growing provinces have contributed no inconsiderable quantities, which could not have bee done if there had not been stored considerable stocks of the rich wheat crop of 1890-'91.

The Indian Government closes its official report of July 11, 1892, with the followin words:

"Should, however, in those districts, the want of breadstuffs continue or extend to large parts of the country, a rise of the prices must be expected, the direct consequence of whic would be that wheat would be retained from export, and the quantity available for expor would have to be used for home consumption."

NORTH AMERICA.

UNITED STATES.

aphic report of the crop in the United States by the imperial and royal Austro-Hungarian consulate-general at New York—cablegram of August 28, 1892.]

ne wheat crop of last year amounted to almost 612,000,000 bushels; this year it is 520,000,000 bushels.

ne rye crop of last year amounted to 36,000,000 bushels; this year, about 29,500,000 ls. The quality is good. The export during the fiscal year 1891–'92 was 12,000,000 ls.

ne maize crop of last year amounted to 2,000,000,000 bushels; this year's crop is esti- at 1,725,000,000 bushels. The quality is good. The export during the fiscal years '75 to 1891–'92 was as follows:

Year.	Export.	Year.	Export.
	Bushels.		*Bushels.*
5	20,000,000	1883–'84	44,800,000
6	52,000,000	1884–'85	52,000,000
7	73,000,000	1885–'86	65,000,000
8	80,000,000	1886–'87	41,500,000
9	85,000,000	1887–'88	24,250,000
0	98,000,000	1888–'89	69,000,000
1	93,000,000	1889–'90	102,000,000
2	44,000,000	1890–'91	31,000,000
3	40,000,000	1891–'92	76,000,000

CANADA.

aphic report on the crop of Canada by the imperial and royal Austro-Hungarian consulate-general at Montreal—cablegram of August 28, 1892.]

st year's wheat crop amounted to 60,000,000 bushels, this year's to 62,000,000 bushels. uality is good. The export during the fiscal year 1891–'92 amounted to 500,000 bar- flour, 7,500,000 bushels of wheat, and 2,000,000 bushels of rye.

HOP-CROP REPORT.

AUSTRIA-HUNGARY.

e development of the hop plant this year has at no time held out any rich promises. heless the state until the middle of this month was such as to justify the expectation e yield would not be much behind that of last year, and that the quality would be un- excellent, as the plant in general, and with but few exceptions, had remained free lisease and vermin. But the quite uncommon tropical heat of the latter days has nt a quick change. The plant, especially in lighter soil, could not sufficiently with- he abnormal temperature; it began to turn yellow, and complaints of copper rust were Although the crop has begun, yet it is difficult to give positive figures of the result, ch, if not all, will depend on how soon the present African heat will give way to a temperature and to rain.

e following estimate is based on the condition of the hop gardens and on the sup- n of an early favorable change of the weather.

the Austrian hop-producing countries, Bohemia is taking the lead again, both in re- quantity and quality.

Saatz only the light soils could not quite resist the tropical heat, while heavy soil and situations have been spared till now, so that we may safely expect the product to be of excellent quality. At the beginning of last week the quantity might still have been

estimated at 60,000 to 65,000 centners; but to-day it could not be estimated at a higher- still considerable—figure than 50,000 to 55,000 centners.

Auscha Rothlande has likewise been shortened in yield, but only on light soils and sides; heavy soils are uninjured. The estimate of 40,000 cwts. last week will prol reach 30,000 to 35,000 cwts.

Grünlande will yield about 25,000 cwts.

In Moravia the not considerable hop area will yield about 4,000 cwts.

Galicia calculates on about 15,000 cwts.

Upper Austria will have a yield of about 7,000 to 8,000 cwts., which is a somewhat l quantity than last year's.

Styria's crop is estimated at about 12,000 cwts.

SAATZ DISTRICT.

[August 22, 1892.]

The new plants of the latter years did not bear fully until this year; consequentl hop acreage of Saatz must be considered essentially increased, and be estimated at about hectares. An estimate in figures of this year's yield is at present very difficult, so muc more so as the condition of the gardens must be considered quite unequal. By the abnormal heat of the last ten days the produce was forcibly ripened, and the more th gathered, the greater the conviction must be that planters have overestimated the res their fields. This is fully founded on the frequent change of temperature which the had to endure during the previous months and by the unequal condition of the plants was caused thereby.

While the chief gardens—in part the city of Saatz, Goldbach, and Egerthal, and al better locations—resisted better the inclemency of the weather, there are still many that much to be wished for. In explanation thereof, the following period of vegetation is stated:

Cultivation began somewhat later in spring, and especially the young sprouts of the that had been trimmed later had to suffer from the cool temperature of May. Not t warmer weather at the beginning of June, in connection with rain showers, was vege promoted somewhat more vigorously. But the unequal growth itself could not be en equalized, so much the less as the nights were mostly cool, and during daytime the suffered from high temperature and from hot winds. The necessity of constant and w temperature and of abundant rains became more and more urgent; but unfortunatel tarried too long.

In early locations the plant, in consequence of the warm weather of July, displa great number of buds, which, however, blossomed too slowly in consequence of w rain, and in the middle of July a late picking was to be expected. In later locatio plant developed more slowly, showed fine, but not too many, side sprigs and rather number of buds; hence the generally prevailing opinion was that, by the setting in of dant rain showers in the beginning of this month, a crop equaling about that of last year be secured. To this must be ascribed that at that time the general condition of the ho was reported as very favorable; but the tropical heat of the last ten days—36° to 41° mur (112° to 125° F.) has caused a change. In light soils and less good gardens th usually high temperature was of bad effect, as the appearance of rust was to be obs and injurious effects and a reduction of the yield was caused. Hence, picking had forced in those districts, while in late locations it did not become general before the 2 this month.

In regard to the quantity, the Saatz district has been less successful than last year. plant, as mentioned before, was wanting in richly bearing fruit sprigs, and the tropical h the latter weeks causing great damage here and there. The crop can be estimated o a weak half yield. If 6 to 7 cwts. are taken per hectare, this would make a yield of 45,000 to 50,000 cwts. Of course, the weather of the next ten to fourteen days, that

as picking lasts, may not only preserve, but also promote, the yield, as cool weather and
lant rains will cause a more perfect development and so increase the yield.

regard to the quality of this year's produce, only the best can be stated. The present
rature promotes the development and ripening of the rundle and increases the formation
ulin, making the product rich in quality. Here and there the hops have suffered from
inds and the abnormally high temperature of the last ten days, and in some places the
leaves much to be wished for.

AUSCHA DISTRICT.

[August 23, 1892.]

r many years the hop plant has not undergone so many changes as it has this year, as dur-
e whole period of development hopes and fears were entertained by turns, and even to-
hen picking has already begun, it is difficult to give a judgment of the result.

he first period of the growth was not particularly favored by the dryness of the spring
er; the plant was not so vigorous and had not so many sprigs as it has in years of a
ield. Complaints of vermin were heard, too, which did not cease until after the setting
the longed-for and abundant thundershowers of July. The plant seemed refreshed and
rated, the blight has disappeared, and hopes for a good, if not a rich, middling crop
st year's were justified and probably would have been fulfilled, too, if the tropical heat
last week had not brought a new and very dangerous enemy to the much-tried plant,
opper rust, which is apt, as it has often done before, to lessen, if not wholly to destroy,
addest hopes of the hop-growers in the very last moment. As yet it has appeared
in the hill lands, but will seize the plains, too, if the drought continues any longer;
is enforcing a hastened picking, which has commenced with the greatest efforts. To-
louds are appearing, and, should they bring the longed-for rain, the damage may still be
ed; but the yield will fall short of last year's by at least one-fourth.

he same thing that has been said here of the Rothlande is to be said of Saatz, which
een visited by the same calamity; and from most of the other European hop-growing
ries similar complaints are heard.

he stocks of 1891 have been used up by consumption, England and America included.
atter, in consequence of larger consumption and its crop of 1892 being estimated at
o bales less, will have to dispose of a reduced quantity for export.

UPPER AUSTRIA.

[Rohrbach and the adjoinging places of the Mühlkreis (mill district)—August 20, 1892.]

general the hop plant this year is not so well developed as it was last year. Retarded
continued cold of May and June, hops have rarely attained the full pole height, nor
they any vigorous side sprigs. Still, the plant, until lately, seldom remained so free from
n and diseases as it has done this year. But by the continued, extraordinary heat of the
days this favorable state has been essentially changed for the worse, and in many gardens
r rust, honeydew, black rot, etc., have appeared.

cking of early hops has already begun. There is a good quality, but a small yield.
hops developed well during blossoming time, but the present heat is injurious to
rmation of the umbels, which remain small and of poor appearance.

rain does not set in within one or two days, cooling off the high temperature, the crop
sing so well a few days ago will lose considerably both in regard to quantity and to
y. Already the yield is estimated at one-third less than that of last year.

GERMANY.

ermany has suffered in the same manner as Austria did from the heat of those latter
The yield, which last week had been estimated at 500,000 cwts.—the same quantity
t year—has here, too, been reduced and will by no means reach the yield of last year's

FRANCE AND BELGIUM.

France, and also Belgium, calculates on half a crop.

RUSSIA.

Russia, the produce of which was of no significance to the markets before last yea suffered much from hail and diseases and will not reach by far last year's crop either in q or in quantity.

ENGLAND.

As almost every year, so this year too, complaints of mold and vermin were heard several parts of the large hop domain. A part of the yield will be discolored and uns while the good locations (east and middle Kent) will probably be satisfactory. The acreage has increased somewhat, and, provided the weather remains favorable, this year's is estimated at about 450,000 to 480,000 quarters, against 440,000 quarters last year. I must be considered that gathering begins late in England, as late hops are only in bl now.

UNITED STATES.

Of the Western States, Washington and Oregon suffered much from vermin an have a smaller yield than last year; but the Eastern States and California have good pects. The American yield of the crop will probably be correctly estimated at 90,000 for the West coast and at 120,000 to 130,000 bales (of about 90 kilograms) for the E States.

It will not be amiss to assume that the weather calamities, as several times mentione fore, will cause a great difference in the qualities. As may be seen from the above, th not too great a crop to be expected in regard to quantity. The stocks of 1891 are exha

Demands will probably come at an early date, as the hot weather caused a large sumption of beer.

SECOND GENERAL HOP-CROP REPORT.

[August 22, 1892.]

To the favorable weather, moderate frosts, abundant snow cover, and the timely rains is due that at the beginning of work in the hop gardens the plant was found to wintered well, showing vigorous young shoots. Complaints of rotting plants were rar of damage done by vermin little was to be observed on the Continent. Until toward th of May rather cool temperatures and, in some places, frosts prevailed, causing the g to be retarded. With the end of May came summer weather, and as fructifying rains not wanting, a great part of the gardens made up for time lost, becoming of nominal and appearance, while another part—especially light soil or old plants—remained weak i vine. July brought much rain, but the average temperature was very low, so that fro sides complaints were heard that the side sprigs, which are the chief bearers of blossom rundles, did not develop so well as in other normal good years. Still, the condition plant, especially after the abundant rains of the beginning of August, was quite satisfact that time, and, in consideration of the great many buds, a good, though not a brillian might be expected. But about a week ago there set in a continued and so tropical a heat ing up to to-day, that at this moment it is doubtful whether the late hops, in spite of the dant buds, will reach a normal development of the rundles; and it is to be feared t a change of weather, *i. e.*, much rain and warm nights, does not shortly set in, the ga which have remained sound as yet, will fall a sacrifice to copper rust caused by the hea

The early hop districts, especially Bohemia, Styria, a part of Würtemberg, and Baden mostly developed produce already ripe for picking, so that these areas will be injured and, according to the present condition of the plant, based on good information, the foll estimation may be given.

Austria has every reason to be satisfied with its crop, as in Bohemia the Saatz hop-gr district will yield about 50,000 cwts.; the Auscha Rothlande and Grünlande, about 60,000 e crop of the Saatz district in 1891 amounted to 75,000 cwts.); Galicia calculates on about ,000 cwts.; Styria, 7,000 cwts.; Upper Austria, 8,000 cwts.; and Moravia and the other own lands, together with Hungary, are estimated at the total amount of about 10,000 cwts.

In Bavaria the quantity of this year's yield will not be less than last year's. The condi-n of the hill lands and the Spalt district is particularly fine. A larger yield is expected an last year's. Hollitau will have about the same crop as last year; but the Franconian stricts and the Aichgrunde are of inferior standing and will have a considerable shortage. e total yield of Bavaria is estimated at 220,000 to 240,000 cwts.

In Würtemburg and Baden, in spite of a pretty satisfactory condition of the plants, the antity of last year's crop will not be fully reached. The former country is estimated at out 60,000 cwts.; the latter at about 50,000 cwts. The Reichslande, too, will have a short-e, and will scarcely get more than 65,000 cwts. The Altmark had complained of the weak ndition of the plants from the very beginning, while in Posen the plant had to suffer from yness for some time, and complaints of copper rust are heard. The yield of these two ovinces, together with the other hop-growing provinces of Prussia may be estimated at out 35,000 cwts.

France will have about the same quantity as in 1891, *i. e.*, about 500,000 cwts.; and lgium, where the condition of plants is better, will harvest about 90,000 cwts.

Russia expects a little less than last year, as the plant does not stand particularly fine in lhynia; but in Poland it is well developed. The crop is estimated at about 70,000 to ,000 poods, *i. e.*, about 25,000 cwts.

In the state of the first vegetation the weather was essentially different in England from t on the Continent. While here rain was wanting in general, England at the beginning mplained of too much wet, from which the plant was suffering. Of late, too, prospects re less favorable, so that while a few weeks ago the yield had been estimated at 7 to 9 arters per acre, the estimate has now been reduced to 400,000 quarters.

JULIUS GOLDSCHMIDT,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Vienna, September 20, 1892.

AMERICANS IN LIVERPOOL.

REPORT BY CONSUL SHERMAN.

I regret that my replies to the questions relating to Americans residing and passing through this district can not be complete. Such statistics, owever, as are available I inclose in response to instruction.

The number of passengers can be obtained only from the records of the eamship companies, but they can do no more than estimate the percentage Americans.

The number of Americans residing during the past year in the Liverpool nsular district was twenty registered at the consulate and thirty estimated.

The average number of Americans resident per year during the past ten ars in the Liverpool consular district is estimated at thirty.

The number of transient Americans arriving at and departing from the iverpool consular district during the past year it is impossible to give with y degree of accuracy. There arrived at this port from the United States ,043 saloon, 13,209 second cabin, and 49,057 steerage passengers during the year 1891, and 26,416 saloon, 18,579 second cabin, and 143,675 steerage passengers departed for the United States.

Of these the steamship companies estimate that of the saloon passengers from 65 to 75 per cent, of the second cabin 10 per cent, and of the steerage not over 2 per cent were Americans.

Of the number of transient Americans arriving at and departing from the Liverpool consular district during the past ten years there are no statistics available without greater expense than I feel authorized to incur.

The approximate aggregate amount paid by the Bank of Liverpool (limited) under circular letters of credit to American travelers passing through Liverpool for the year ended April 30, 1892 (drafts and circular notes not included) was £31,000 ($155,000); by Baring Bros. & Co., £10,880 ($54,400); total, £41,880 ($209,400). The other Liverpool banks state that their payments have been unimportant.

THOMAS H. SHERMAN,
Consul.

UNITED STATES CONSULATE,
Liverpool, June 20, 1892.

HONGKONG STATISTICS.

REPORT BY CONSUL SIMONS.

HONGKONG A FREE PORT.

The difficulties attending the preparation of a report upon the commerce of Hongkong, in the absence of custom-house statistics or of any system of registration of the exports and imports of the colony, can be appreciated only after personal experience. Hongkong is a "free port"* in the fullest sense of the words, and every attempt to introduce such registration is strongly opposed by the merchants of all classes, who fear that such a step would lead to troublesome restrictions upon trade, and ultimately, perhaps, to the establishment of a custom-house and the levying of customs duties. So strong is this belief that when the present governor, Sir William Robinson, shortly after his arrival, proposed the enactment of an ordinance to make such registration compulsory, the Hongkong Chamber of Commerce, in view of the public importance of the question, brought it before the an-al general meeting of its members, held on May 5, 1892, when the follow- g resolution was unanimously carried:

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*I am constantly receiving letters from American exporters inquiring the duty levied on various articles at Hongkong, and, in view of this circumstance, I believe that the fact that Hongkong is a free port can not be too strongly insisted upon, especially as I discovered in the commercial relations of the United States for 1887 some statements on this subject so misleading that they ought not to be left uncontradicted.

The writer says that the former duty on kerosene oil was 40 cents a case, but that lately a further likin tax of 80 cents a case has been levied, and that both taxes are collected at Hongkong, which has hitherto been a free port, but has now apparently become a customs station for the Chinese Government. Now, as a matter of fact, Hongkong has never ceased to be a free port, and the explanation of the kerosene tax is very simple. As I have stated in this report, the office of the Kowloon customs station is located in Hongkong, and, as all oil carried into the interior in junks has to pay duty at Kowloon, it naturally follows that the payments are actually made at Hongkong. This, however, has no connection with the colonial government, but is purely a matter of convenience to shippers.

> That the chamber of commerce is of opinion that the proposal to obtain returns of cargo m vessels coming in and going out of this harbor will, if adopted, prove detrimental to interests of this colony; therefore, it recommends the Government to abandon the idea of acting such a measure as law in this colony.

On the governor's expressing surprise at any opposition to so simple a oposal, having for its aim nothing beyond the recording of trade statistics, hich in one form or another is carried out in almost every port of the itish possessions, and requesting the chamber of commerce to state its asons for such opposition, he was answered that—

> Apart from its excellent and commodious harbor, Hongkong, when first occupied, was spicuous chiefly by the disadvantages under which it labored as a seat of any extended nmerce. Being an island of very limited area, producing nothing, and having no large ritory immediately connected with it, the principle was clear from the first that only by icious fostering, exceptional treatment, and absolute freedom as a port could such a place r become an emporium of any description of trade.
>
> As the most important part of such treatment it was recognized that not only must the ony be constituted a free port, in the ordinary acceptation of the term—exemption from stoms duties—but this freedom must also include, so far as consistent with good order, an ire absence of restrictions in all matters connected with shipping, trade, and trading opera- ns.
>
> To its immunity from customs dues and the comparative absence of vexatious regulations existence and growth of Hongkong as a colony are in a great measure due. * * * leed, it is rather a port of general influence and the protection of the general trade in the inese seas than a colony in the ordinary sense. The bulk of the business carried on here ludes something different from mere buying and selling; it has been created by, and is pendent for its existence upon, the exceptional facilities afforded for the free and unim- led handling of goods. Therefore, regulations which will hamper or in any way render s more troublesome and tedious are directly prejudicial to the main interests of the colony.
>
> These observations apply with especial force to the Chinese, numbers of whom have been racted to this colony by the promise and the belief that their trade would be free from ublesome restrictions, and who can with greater facility than Europeans transfer their busi- s to the adjacent Chinese territory or to neighboring ports if they think that vexatious islation is likely to be adopted in this port.

It will be apparent that with such opposition it is not likely that regis- ation will make much progress for some years to come.

Not only, therefore, are the data lacking from which to compile an ac- rate commercial report, but even the movement of merchandise to the fferent ports from Hongkong, the trade center of the East, can be only proximately determined, while the sources of origin of the various articles affecting the different countries remain unknown, except, perhaps, as they pear in the private ledgers of the different mercantile houses.

EXPORTS TO THE UNITED STATES.

While, therefore, it would be both interesting and desirable to make a itical comparison between the United States and other countries as regards eir trade with Hongkong for a series of years, that is manifestly impracti-

cable, and it is evident that the only absolutely accurate commercial i
mation which I can supply is confined to the exports from Hongkong t
United States, as obtainable from the invoices on file in this consulate.

The following statement, compiled from the record of invoices of g
exported to the United States from Hongkong, shows the total value of
article for the years 1889 and 1891 and the increase or the decrease in
latter year. I have selected 1889 rather than 1890 for purposes of compa
with 1891, in order to show as far as possible what effect, if any, the pr
tariff has had on the importation of each article into the United States

Table showing the value of declared exports from Hongkong to the United States f years 1889 and 1891.

Articles.	1889.	1891.	Increase.	Dec
Camphor-wood trunks	$1,353	$370		
Cassia	82,509	87,538	$5,029	
China ware	3,407	4,767	1,360	
Clothing	202,951	207,317	3,366	
Coffee	1,145	3,322	2,177	
Curios	2,055	4,576	2,521	
Fans	13,250	7,507		
Firecrackers	156,411	16,240		
Fish nets	4,333	2,563		
Hair, human	520			
Hats	2,494	3,693	1,199	
Matting	372,216	101,046		
Medicine	59,042	53,490		
Nutmeg	4,411	2,112		
Oil	251,792	264,613	12,821	
Opium:				
Crude		5,700	5,700	
Prepared	120,463	541,565	421,102	
Persian	29,813			
Paper	11,735	12,357	622	
Pepper	10,889	5,278		
Personal effects	8,050	127		
Preserves	3,231	5,349	2,118	
Provisions	406,057	428,742	22,685	
Quicksilver	5,824	66,031	60,207	
Flasks	2,267	2,139		
Rattan	31,097	23,075		
Rice	830,028	891,123	61,095	
Rope	190			
Sago	1,104			
Shoes	59,285	58,442		
Silk	1,164,490			
Goods	150,620	69,397		
Sugar	9,089	413,648	404,559	
Sundries	162,403	139,581		
Tapioca flour	49,015	31,945		
Tea	100,725	127,076	26,351	
Timber	3,021			
Tin	50			
Tobacco	35,280	47,770	12,490	
Wine	22,235	22,605	380	
Total	4,374,840	3,691,104	1,046,782	

In the case of refined sugar the effect of the reduction of duty is dis- ctly seen in the increase from $9,089 in 1889 to $413,648 in 1891, and, ce the largest refinery contemplates enlarging its capacity so as to increase output 2,000 piculs (133 tons) a day, there in every prospect that in the ar future the figures will show a still larger increase. Prepared opium is only other article which shows a very large increase, notwithstanding the reased duty, while the increased exportations of quicksilver, rice, and have apparently little or no connection with the tariff. On the other nd, the total disappearance of raw silk from the records and the great de- ase in firecrackers, silk goods, and matting are only to be accounted for the supposition that the trade in these articles has been wholly or largely ected to Canton, although in the case of matting the growing popularity l increased importation of the thick, soft Japanese matting may have had ne effect in reducing the export of the Chinese article to the United States.

Statistics as to the share taken by each flag in the export trade from ngkong to the United States in the years 1889 and 1891 may prove in- esting.

le showing the value of the exports from Hongkong to the United States by each flag in 1889 and 1891.

Flag.	1891.	1889.
rican	$40,966	$65,533
ish	453,243	122,505
nan	271,529	1,739,104
uguese	531,710	104,382
ese	2,393,092	2,333,637
r European	564	9,679
Total	3,691,104	4,374,840

It should be observed that the large increase in the English exports in 1 is almost solely due to the one article of refined sugar, while the increase he Portuguese figures is also owing chiefly to one article—prepared opium. e share taken by American vessels in the total carrying trade from Hong- g to other countries in 1891 amounted to only 26.7 per cent of the total, :

oped in American bottoms	$989,008
pped in foreign bottoms	2,702,096
Total	3,691,104

The returns of the Chinese customs station at Kowloon (whose office is ated in Hongkong) give some idea of the passage of merchandise through latter port, but it must always be remembered that there are two other tes between Hongkong and the interior of China, viz, by way of Canton l Lappa, respectively; and, since trade will naturally seek the channel st obstructed by taxation at the time, it follows that the increase and de- ase, or even the total disappearance, of a particular article from the

Kowloon returns for any given year is no indication of the actual quan of that article passing through Hongkong. For instance, up to last year bulk of the rice and paddy required to supply the needs of the Quang-T province, and which amounts to nearly 25 per cent of the whole trade Kowloon, came from Cochin China and Siam and was all landed or tr shipped at Hongkong into junks in which it was carried into the interior way of Kowloon; but in 1891, the Siamese rice crop being short, the c ciency was supplied by Chinese rice from the Yangtse Valley, all of which sent into the interior in steamers by way of Canton, causing a decline in Kowloon figures of over 2,500,000 piculs, valued at 4,000,000 taels. Ag there was a falling off in kerosene in 1891 at Kowloon of over 500,000 ta although the total kerosene trade of southern China for 1891 was 9,226, gallons, or an increase over 1890 of nearly 2,500,000 gallons. This wa consequence of the action of the Chinese provincial authorities impo upon kerosene carried in native junks the heavy "battery tax" of 40 c a case, thus driving the kerosene trade from junks (passing through Kowlo to river steamers entering by way of Canton, which pay no battery being under the protection of foreign flags. This result of their ac alarmed the Chinese authorities, and they subsequently reduced the bat tax on junk-borne oil to 20 cents a case and endeavored to make an ill discrimination in favor of the junks in the case of oil sent into the inte by foreign merchants under transit passes, an action which was the sub of determined remonstrance on the part of the foreign merchants and le an extended correspondence between the Hongkong Chamber of Comm and the British minister at Peking; and this proving unavailing, the chan laid its grievances before the home secretary.

The outward carriage of tea, on the other hand, was diverted in 1 from the river steamers to the junks by an action on the part of the Chi authorities similar in kind, but opposite in effect to that which drove k sene from the junks to the steamers, and consequently the tea trade of K loon increased out of all proportion to the total increase of the whol southern China, being accompanied by a corresponding decrease at Can

Nor is the revenue collected at Kowloon a fair indication of the t volume of the trade, since more than 60 per cent of all the imports or ports go or come by way of Canton, paying duty at that port and pas Kowloon free, while exports pay half their likin at the port of shipment

Again, opium shows in the Kowloon statistics a decrease of over 150, taels in 1891 from the figures of 1890, but this is more than compens for by increased importations by steamer via Canton.

The following table forcibly illustrates what has been said concerning ce, kerosene, and opium, notably the two former:

Articles.	1888.	1889.	1890.	1891.
ce and paddy:				
To Canton by steamer........piculs...	1,431,277	1,827,137	1,549,223	4,400,586
Through Kowloon by junk........do......	618,004	1,975,373	7,045,701	4,459,734
Through Lappa by junk........do......	63,074	85,172	118,818	151,752
Total........do......	2,112,355	3,887,682	8,713,742	9,012,072
rosene oil:				
Through Kowloon by junk........gallons...	2,912,115	4,511,180	6,814,449	4,636,383
By steamer to Canton........do......	8,456	48,062	25,790	4,639,971
Total........do......	2,920,571	4,559,242	6,840,239	9,276,354
ium:				
At Canton........piculs...	13,115	12,270	11,812	12,788
At Kowloon........do......	2,851	2,453	1,810	1,447
At Lappa........do......	1,811	1,962	2,090	1,881
Total........do......	17,777	16,685	15,712	16,116

The total value of the goods exported from Kowloon to Hongkong in 91 was 17,016,926 taels, as against 14,840,669 taels in 1890, or an in- ease of over 2,000,000 taels. As already explained, half of this increase due to the change in the carriage of tea by junks, instead of by steamers heretofore.

That there has been a real increase in the export of tea, however, and t merely a nominal increase at the expense of Canton is proved by the ct that, while the falling off in the export of tea by steamers at Canton was s than 38,000 piculs, the increase of the export of tea by junks from owloon was over 57,000 piculs, representing an actual independent in- ease of nearly 20,000 piculs, valued at about 370,000 taels.

The export of raw silk was 4,424 piculs, valued at a little over 1,460,000 els, an increase over 1890 of more than 25 per cent. This is largely due the erection of steam looms at Macao in 1891, which consume a large nount of raw material. About 50 per cent of the total exports came from nton; about 13 per cent from Chautsan, south of Canton; about 5½ r cent from Swatow; about 3½ per cent from Taiping, in the Tungkin stricts; about 4 per cent from Konginumu, west of Macao; 2½ per cent om Hoion; 2½ per cent each from Kowhong, Shiklung, and Sanon; and e remaining 12 per cent from sixty-two other places.

As shown in the preceding table, the total importation of opium in 1891 as only 1,447 piculs, a falling off of 20 per cent from the figures of 1890. it, as previously explained, this is chiefly due to the increased importa- ons by way of Canton in the river steamers, largely owing to the discon- uance of the privilege formerly granted to junks of being towed by steam unches and the consequent increased risk of the carriage by junks.

The diminution in the importation of opium through Kowloon can not attributed to any increase in smuggling in 1891 as compared with 1890.

On the contrary, the Kowloon authorities declare that there was less smuggling in 1891 than in any previous year, though it doubtless still exists to some extent. Almost all the opium smuggling on a large scale is done in small boats, which leave the harbor at night. This has been to some extent remedied by a new ordinance, passed in Hongkong toward the end of 1891, one clause of which forbids the departure of junks at night from the waters of the colony except by special permission.

Patna opium formed 77 per cent of the total Kowloon importations and Malwa about 15 per cent.

The Kowloon returns, however, as before explained, are insufficient of themselves to give any idea of the trade of Hongkong. They must be taken in conjunction with those of Lappa and Canton. The United States consul at Canton has doubtless supplied the latter, and those of Lappa will be found in the "Report and Returns of Trade" of the Chinese imperial maritime customs of 1891, published by the Chinese Government; but a few words of comment on the Lappa report will not be out of place.

The junk trade of Lappa, like that of Kowloon, suffered heavily from the battery tax (*ching-fei*), a duty levied on all goods carried in Chinese bottoms for the purpose of erecting fortifications and purchasing guns for coast and harbor defense, a tax which in Lappa, as in Kowloon, has had the effect of diverting trade to Canton by river steamers. The imports of kerosene via Lappa fell from over 311,000 gallons in 1890 to 240,339 gallons in 1891, a decline of 71,000 gallons from this cause alone.

The value of exports abroad from Macao in 1891 was 1,918,915 Hongkong taels, chiefly due to black and green tea and raw white silk, the latter going chiefly to feed the steam looms of Macao. With regard to tea, the Lappa commissioner observes that while the total quantity exported is almost the same as in 1890, the export for 1891 consisted almost entirely of black tea, green having nearly disappeared from the records. The export of cassia oil rose from 497 piculs in 1890 to 783 piculs in 1891. Groundnut oil, on the contrary, shows a decrease of 10,000 piculs, valued at 52,000 Hongkong taels, the decline being attributed by the commissioner to the lessened demand for it in the United States and Australia caused by the diminished number of Chinese emigrants to those countries under the present restriction acts. This observation is not borne out by the statistics of the Hongkong exports of oil to the United States, which show an increase of $12,821 in 1891 over the figures for 1890.

The decrease in the opium export of Lappa shown in the foregoing table is attributed by the commissioner not to any increased use of the native drug, but chiefly to the quantity of Smyrna opium shipped direct from Singapore, landed at out-of-the-way places, paying no duty or likin, and smuggled from Macao in quantities estimated by the native authorities at from 40 to 60 chests a month. He finds in this Singapore-shipped opium the explanation of the decline in the Kowloon opium statistics, contrary to the opinion of the Kowloon commissioner, who, we have seen, ascribes it solely to increased shipments via Canton.

SHIPPING.

; returns show an advance in the trade of the colony, the
arrivals and departures amounting to 14,000,000 tons, the
et reached and over 250,000 tons more than in 1890. There
vals, with a tonnage of 7,001,829 tons, and 32,960 departures,
ns, making a grand total of 66,040 vessels and 14,005,698

in European-constructed vessels numbers 488, of 507,302
ecrease in the foreign junk trade of 1,283 vessels, measuring
d an increase in the local junk trade, *i. e.*, ports of the col-
sels, aggregating 131,064 tons, or a net increase in junks of
The net increase of the trade of the port was 2,053 vessels,
05 tons.

g statement shows how this amount of shipping is appor-

1890.		1891.		Increase.		Decrease.	
No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
5,524	6,994,919	5,719	7,190,589	195	195,670	....	....
2,695	2,776,822	2,988	3,088,454	293	311,632	....	....
46,686	3,572,079	45,403	3,263 118	....	....	1,283	308,961
54,905	13,343,820	54,110	13,542,161	488	507,302	1,283	308,961
9,082	332,473	11,930	463,537	2,848	131,064	....	....
63,987	13,676,293	66,040	14,005,698	3,336	638,366	1,283	308,961

ith 1890, there has been an increase of British tonnage
5,670 tons and an increase of foreign tonnage of 311,632
rison with the average of the last three years shows an in-
f 433 British ships, representing 533,878 tons, and of vessels
gs an increase of 478 ships, measuring 495,028 tons.

FORESTS.

yet no forests, properly speaking, although the afforestation
ne of the leading public works, and the young plantations
l and already add greatly to the beauty and health of the

MINES AND QUARRIES.

mines in actual operation in the colony, although there
rs of the discovery of galena, copper, and tin in the island
vloon, but apparently not of sufficient richness to tempt
ttempt to develop them.
ne hundred and three granite quarries, which produced
f stone in 1891.

EMIGRATION AND IMMIGRATION.

The returns for Chinese emigrants and immigrants are shown in the following table, taken from the harbor master's report:

EMIGRANTS.

To—	Adults.		Children.		Total.
	Males.	Females.	Males.	Females.	
Honolulu, Sandwich Islands	1,172	191	150	55	1,568
Mauritius	647	5	17	3	672
Portland, Oregon	34			1	35
San Francisco	2,678	141	12	27	2,855
Straits Settlements	31,396	4,385	690	550	37,021
Vancouver Island, British Columbia	1,970				1,970
Victoria	1,038				1,038
Total	38,938	4,722	869	636	45,162

IMMIGRANTS.

From—	Adults.		Children.		Total.
	Males.	Females.	Males.	Females.	
Adelaide, South Australia	18				18
Bangkok, Siam	5,680				5,680
Brisbane, Queensland	117				117
Cairns, Queensland	23				23
Callao, Peru	279				279
Cooktown, Queensland	65				65
Dilly, Timor	64	3	9	4	80
Honolulu, Sandwich Islands	625	4			629
Mauritius	140				140
Medan, Sumatra	979				979
Melbourne, Australia	613	3	5		621
Newcastle, Australia	40				40
New Zealand	148				148
Port Darwin, South Australia	162		1		163
Portland, Oregon	97	4	1	1	103
Rockhampton, Queensland	31				31
San Francisco	9,102	160	97	52	9,391
Straits Settlements	79,818	2,501	902	566	83,787
Sydney, Australia	722		2	1	725
Thursday Island, Australia	20				20
Townsville, Queensland	189				189
Vancouver, British Columbia	1,894	14	7	6	1,921
Victoria, British Columbia	50				50
Total	100,876	2,689	1,004	630	105,199

The amount of treasure brought by immigrants from San Francisco was $5,929,904 and from Australian ports $1,505,886.

It will be seen that the total number of Chinese emigrants to other countries last year was less than half the number who returned to China during the same period. The whole number of Chinese who entered the various North American ports was only 51.4 per cent of the number who returned to ame ports, while the exodus of Chinese from San Francisco s nearly double the entire Chinese immigration into all the ports and more than three times as great as the influx of Francisco itself.

of treasure brought back to China by those returning from is not given except for San Francisco; but it is probably at the total amount bears about the same ratio to the total ngers as in the case of that city, on which assumption the reasure carried out of North America by returning Chinese something like $7,250,000.

MANUFACTURES.

nerous, but, as will be seen from the subjoined list, most of heir nature, conducted on a small scale, but little capital The chief exceptions are the sugar refineries and the Hong-facturing Company (limited), whose plant, imported through-ork, is said to be one of the most costly and complete in the shows a slight increase in the number of manufactories in artment over that in 1890. The number of manufacturing as as follows:

tion.	Number.	Description.	Number.
	10	Lanterns	24
	2	Leather boxes	11
	1	Oars	28
	15	Opium (prepared)	3
	50	Paper boxes	5
	60	Rattan ware	64
	19	Rope and sails	28
	2	Sandalwood ware	8
	52	Sapan-wood ware	7
	17	Silk handkerchiefs	1
	58	Soap	2
	5	Spectacles	1
	10	Soy	23
	1	Sugar refineries	3
	55	Tanneries	6
	6	Tinware	12
	26	Tobacco	17
	10	Tooth powder	1
	52	Umbrellas	23
	2	Vermilion	7

POPULATION.

d population on the 31st of December, 1890, was 198,742, ore than the estimated population at the end of 1889.

en in May, 1891, gives the total number of inhabitants of ngkong and British Kowloon as 221,441, of whom 210,995 901 colored, and 8,545 white. There were 157,585 males es.

The following is the mean estimated population for the last nine yea

Years.	Males.	Females.	Tot
1883	124,768	48,707	173
1884	130,560	50,969	181
1885	137,079	53,515	19
1886	144,550	56,440	20
1887	152,427	60,524	21
1888	154,500	61,300	21
1889	138,033	56,449	19
1890	....	....	19
1891	159,969	64,845	2

Of the Chinese, 17,215 live in boats, having no other residence (liter a floating population). There were 205 births during the year in the Bri and foreign community and 1,529 among the Chinese, making a tota 1,734.

Of deaths, there were 191 in the British and foreign community, 5 which were nonresidents, and 5,183 among the Chinese, or a total of 5,3

The birth rate per 1,000 for the year among the British and foreign c munity was 19.53; the death rate per 1,000, 18.2. Among the Chi the birth rate per 1,000 for the year was 7.13 and the death rate 24. This makes the birth rate for the whole population 7.71 per 1,000 and death rate 23.9 per 1,000.

AGRICULTURE.

This is and will always continue to be of small importance. The roc mountainous nature of the island and its dependencies limits the amoun arable land to small garden patches, in which only vegetables for home c sumption can be raised.

FISHERIES.

There is no means of ascertaining the nature and value of the ye products of the fisheries; but these waters abound with excellent food f and it is estimated that there are at least three thousand distinct varietie "sea food" exposed for sale in the Chinese markets during the year.

PENSIONS.

The number of persons enjoying pensions payable from the revenue the colony in 1891 was 289, to whom were paid sums ranging from (in the case of Sikh policemen) to $3,000 (in that of a retired colonial se tary and auditor-general), amounting in the aggregate to $50,056.81.

WAGES.

The average rate of wages for labor is as follows: Domestic serv (employed by Chinese), from $12 to $36 per annum, with board and lodgi Chinese (employed by foreigners), from $48 to $144 per annum, usu with lodging; Chinese workmen, from $60 and upwards, with board niths and fitters, from 40 cents to $1.25 per day; carpen- from 30 to 40 cents per day; masons and bricklayers, from r day; laborers, from 18 to 30 cents per day.

REVENUE AND EXPENDITURE.

amounted to $2,025,302.51, or, excluding premiums from vater account, $1,907,054.43. The expenditure amounted , including extraordinary works; excluding these, $1,868,- venue has been classified in conformity with the instructions of state for the colonies.

and expenditure for the past five years have been:

enue.	Premium from land.	Expenditures.		Water account.	
		Ordinary.	Extraordinary, including defensive works.	Receipts.	Expenditures.
,485.79	$155,238.02	$1,278,181.68	$744,820.38	....	....
,300.03	160,688.64	1,461,459.64	530,870.03	....	....
,549.13	154,725.60	1,459,167.16	374,551.63	....	....
,220.47	16,638.80	1,517,843.05	397,507.42	....	....
,054.43	51,761.47	1,868,073.26	514,526.39	$66,486.61	$66,486.61

expenditure (inclusive of the volunteer corps) defrayed by g the last seven years has been as follows:

Year.	Military contributions.*	Defensive works.
....	$117,337.00	$68,153.45
....	124,561.68	217,901.45
....	128,815.63	258,444.28
....	134,594.68	62,115.90
....	134,261.12	63,753.73
....	124,646.96	5,082.92
....	†421,002.01	20,005.45

ive works and inclusive of volunteer corps.

bution was doubled from January 1, 1890, and the arrears for 1890 were paid in 1891.

PUBLIC DEBT.

s to £200,000, and was incurred for fortifications, sanitary

MONEY AND COINAGE.

in use in the colony consists of the following coins:

r dollar of Mexico.

gkong dollar and half dollar, issued by Her Majesty's mint.

ins issued from Her Majesty's mint representing one-fifth dollar, commonly called "20-cent piece;" one-tenth part ommonly called "10-cent piece;" one-twentieth part of said y called "5-cent piece."

(4) Copper or bronze coins, also issued from Her Majesty's mint, re
senting one-hundredth part of said dollar, commonly called "1-cent pie
one-thousandth part of said dollar, commonly called "mill" or "cash.

The approximate amount of Hongkong silver and copper and subsid
coins (20, 10, and 5 cent pieces and 1-cent and 1-mill pieces) put in cir
tion up to December 31, 1891, was $72,612,500. On May 25, 1890,
ever, a Chinese mint was opened at Canton for the coinage of "bronz
copper cash," and on the 22d of May, 1890, it commenced making s
coins. From that date to December 31, 1891, the output was as foll
Dollars, 43,933; half dollars, 17,847; 20-cent pieces, 5,667,381; 10-
pieces, 16,098,579; 5-cent pieces, 1,158,945. From January 1 to Ma
1892, the output was as follows: Twenty-cent pieces, 2,250,000; 10
pieces, 4,450,000; 5-cent pieces, 100,000. The average output of cas
day up to February, 1892, was 400,000. Since February about 500,000
per day have been made.

The nominal weight and fineness of the Canton coins are as foll
Dollars, 416 grains, 900 fine; half dollars, 860 fine; 20-cent pieces, 820
10-cent pieces, 820 fine; 5-cent pieces, 820 fine; cash, 60 per cent c
with 40 per cent of zinc or spelter. Tested at the mint in England i
found that the fineness of all the coins was far below the nominal stand
thus the dollar was 884.2 fine; the half dollar, 848.2 fine; the 20-cent p
807.3 fine; the 10-cent pieces, 808 fine; 5-cent pieces, 811.1 fine.

The dollars weighed in England were found to be fully half a grain li
than they were said to be. This year, I am told, the dollars are a trifle
the standard weight. In 1891 the Hongkong mint put into circulation
sidiary coins to the nominal value of $1,500,000, and made a profit of
$70,000. While this year the Canton coins have been sold at a disc
the monthly issue of the Hongkong mint has fallen to about $5,0
$10,000. The colony has been flooded with the Canton coins, whic
sold to bankers and compradors on issue from the mint at a discount;
the demand for Hongkong coins has decreased, in consequence, to suc
extent that the colonial revenue from this source will probably not e
$10,000 this year. Probably not more than 20 per cent of the whole
put of the Hongkong mint is now in circulation.

EXCHANGE.

The fluctuations during 1891 in the value of the Mexican dolla
currency of the East, while not so great as during the year 1890, hav
been sufficient to greatly hamper most business calculations, introdu
as must be apparent, an element of uncertainty whose disastrous e
upon commerce, and (though to a less degree) upon private credit al
is impossible to estimate. It is not so much the amount as the rapid
the variation which has been found so trying to merchants and broker

Could the value of the circulating medium be fixed, even at so
rate as that prevailing to-day—June 22 (70½)—it would be a boon t
commercial interests of the East.

THE KEROSENE TANK STEAMER.

n in the kerosene oil trade of the colony which is exciting erest and some anxiety among masters of American sailing atened introduction of the tank steamer, designed for car- il in bulk by way of the Suez Canal. The first of this in- eamers, the *Murex*, has just been launched in England, but it n whether the Hongkong merchants will be allowed to store n their premises or not; and even if this privilege is granted, n question whether the extra dues and precautions which n in the passage of the canal, together with the expense of ns and making the cases at this end of the route, will not ensate for the saving in freight, although it is believed that render this unnecessary by providing their own receptacles bringing it from the godowns. If, however, the experi- uccess, it would mean the almost total disappearance of g ships from these waters, for they bring literally nothing t.

wn here what steps, if any, the American oil companies have templating to avert the threatened loss of its eastern trade. they have on all occasions hitherto displayed conspicuous care of their interests, it is presumed that they will not be this instance.

COAL IMPORTS.

tion of coal into Hongkong for the nine years ended with teresting features. Previous to 1885, as will be seen by the he supply came from places other than Japan, and in the and. In 1885 the first shipment began from Japan, and furnishes the bulk of the supply. It is believed by those on the subject that, were mining permitted by the Chinese total supply of coal for Hongkong could be produced of that market and within three years from the beginning

ll the coal used in Hongkong produced outside of China, of itself an important import into that country, more than ng been sent from Hongkong to Canton and Lappa during while a glance at the tables showing the imports into China e imperial maritime customs), shows a like condition at ms stations.

unlimited supply of coal within reach of water transporta- so far been scarcely touched, it seems incomprehensible d not only import that necessity but neglect such a market up almost within sight of the hills rich in this undisturbed

A consideration of the causes of her inaction, or rather active op
tion to the development of her mines, would be out of place in such a r
as this.

Table showing imports of coals into Hongkong during the last nine years.

Description.	1883.	1884.	1885.	1886.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Total Japanese	....	....	181,155	223,181
Other countries:				
England	....	....	....	66,154
Australia	....	....	....	89,053
New Zealand	....	....	....	....
Keeling Islands	....	....	....	250
Anam	....	....	....	800
Canada	....	....	....	60
Total foreign	265,006	309,269	184,984	156,317
Grand total	265,006	309,269	366,139	379,498

Description.	1888.	1889.	1890.
Japan:	*Tons.*	*Tons.*	*Tons.*
Müke	106,605	137,380	141,274
Nagasaki	147,636	97,484	153,618
Kobé	43,797	84,187	41,960
Karatsu	....	....	....
Otaru	....	....	6,000
Yacyama	1,304	5,957	....
Moji	....	....	60,236
Total Japanese	299,387	324,999	403,088
Other countries:			
England	19,830	27,770	16,811
Australia	26,941	63,858	29,002
New Zealand	1,500	3,000	200
Keeling Islands	1,177	4,700	2,400
Kaiping	....	....	....
Tonquin	....	....	350
Anam	....	....	....
Canada	....	1,000	450
Total foreign	49,448	100,328	49,213
Grand total	348,835	425,327	452,301

The percentage of Japanese coal to the total import was as follows:

Year.	Per cent.	Year.
1885	49.5	1889
1886	58.8	1890
1887	73.6	1891
1888	85.8	

AMERICAN PRODUCTS IN CHINA.

narket for American and European products China, with its
o0,000,000, offers prospects unparalleled by any country not
opened to the markets of the world. If we desire to secure
te share of this market, however, our merchants must study
than they have hitherto done both the national character-
nese and the precise nature of their requirements. The first
ummarized as follows: Intense conservatism, a stolid disre-
l comfort (according to our ideas), strangely combined in the
s with lavish expenditure and great love of display in their
and in business matters an extreme caution, amounting at
difference as to the adoption of modern ideas or inventions.
ties are well exemplified in the Chinese inhabitants of our
, who, after years of contact with their white neighbors, still
ard, uncomfortable chairs and couches, never even substi-
ner or hair pillow for their neck-breaking wooden article,
rted from Hongkong alone last year over $400,000 worth
products and $53,000 of Chinese medicines.

point to be considered by the American merchant in the
n a Chinese market for his products is, as I have said, the
f the requirements of the people. For example, in a coun-
practically are no wheeled vehicles and everything is trans-
oulders of barefooted coolies there is naturally little need of
amized roads, and it is consequently absurd to think of in-
sive American road-making machinery—rock crushers, pon-
llers, and the like. Yet I am constantly receiving letters
manufacturers asking my assistance in introducing these and
, such as saw and planing mills, mowing and thrashing ma-
esters, all equally absurd in their inadaptability to the require-
try where there are no large farms or plantations and where
so cheap as to be a drug in the market.

of our products, on the other hand, such as flour, kerosene
ks, watches, knit goods, umbrellas, etc., there is already a
ily increasing demand; while I am convinced that many
al inventions, such as small gas engines, foot lathes, printing
ecially American hand tools and hardware of every descrip-
l a ready sale if the Chinese were once convinced of their
nomy. This can never be accomplished, however, by the
followed by most American manufacturers, of flooding the
scriptive trade circulars and illustrated catalogues.

ng needful above all others to convert the splendid possibil-
re into a remunerative certainty is personal introduction of
atient explanation of their advantages by intelligent agents,
once secured can only be retained by absolute integrity and
he part of the American merchant, as the Chinese are shrewd

traders, and their confidence in an individual dealer, once shaken, can n be regained.

AMERICAN FLOUR IN HONGKONG.

It is estimated by one of the largest flour importers in Hongkong the quantity of flour imported from San Francisco in 1891 amounte 1,300,000 quarter sacks, which, with 500,000 from Portland, Oregon, about 50,000 from Vancouver, make a total of 1,850,000 quarter sacks largest figures yet reached, each quarter sack containing 49 pounds of f It is sold in Hongkong for an average price of $1.30 in Mexican mo or nearly $1 in gold.

CONCLUDING REMARKS.

I regret to say that great depression prevails in all branches of busi Failures have been numerous, and that condition known all over the v as "lack of confidence" is widely felt. Stocks of all kinds, even those ing the normal dividends, have fallen enormously, while the numb companies in process of liquidation is a clear indication of the absen that atmosphere of general prosperity so essential to the success of spe tive enterprises.

Two causes are assigned for this undesirable state of affairs: First launching of "bubble companies" during the last few years, which, claimed, has drained the colony of many millions of dollars; and, sec the ever-recurring question of exchange. Merchants who purchased g at a time when the Mexican dollar was worth 85 or 90 cents in gold now either dispose of them at a loss or advance their prices, and the l course is always followed by a contraction in the amount of sales.

It is generally believed, indeed, that the "legitimate" business of colony has not greatly suffered, while the shipping on which its very e ence depends shows, as we have seen, a healthy increase. But the fac mains, nevertheless, that universal dullness prevails, money is "tight," credit contracted, and there are no reliable indications of a speedy impr ment.

O. H. SIMONS,
Consu

UNITED STATES CONSULATE,
Hongkong, July 6, 1892.

SPANISH ESPARTO GRASS.

REPORT BY CONSUL NEWSON, OF MALAGA.

The esparto grass of Spain is of a natural and luxuriant growth, foun the valleys and on the table-lands, especially in the provinces of Alm Murcia, Granada, Alicante, and at other points in the south of Spain. is round and wiry, very strong, grows about 2½ feet high, and yields a dantly two crops per year. It is not cut, but is pulled, and the groun burned over every ten years. It is gathered in July and August, grows spontaneously, and needs no irrigation. The total production per year is from 70,000 to 80,000 tons, of which 60,000 tons is shipped to Scotland and England for the manufacture of paper, and the balance of the crop is retained for home consumption, for the manufacture of very strong ropes, baskets, matting, sandals, etc.

Formerly it ran to waste or was used only as fuel, but now it has become an important article of exportation; and land that was considered only a few years ago almost valueless is now worth many thousands of dollars, as the yield of this article affords splendid incomes. The product is almost the identical article we call wire grass in the United States. If some enterprising man in the United States would commence its cultivation, its utility in the manufacture of ropes, matting, and especially paper would make him rich. It needs no care; it grows while man sleeps; it says, "come and take me;" and, through the genius of intellect, many valuable articles are made from it. I have seen and examined very fine matting for floors made from it, very strong baskets, and ropes as great in strength and as durable as those made from hemp. Why import articles made from it when you can grow the grass and utilize it in domestic economy? Pick out the article from your timothy, your blue joint, and your common grass, plant it, gather the seed, replant it, and in a few years you will have immense fields of this valuable article. Or, if this won't work, get some seed from Spain and plant it, as I know it will grow in the United States just as well as in the climate of Andalusia.

T. M. NEWSON,
Consul.

UNITED STATES CONSULATE,
Malaga, July 15, 1892.

THE GERMAN AND ENGLISH HOP CROPS.

REPORT BY CONSUL-GENERAL MASON, OF FRANKFORT.

In the latest report of this series (September 10*) the hop product of Germany for the current year was estimated at 43,500,000 metric pounds (1 metric pound = 1.103 pounds avoirdupois) and the quality rather above the average. Since then the harvest has been finished, and, although the precise statistics can not be ready before December, enough is now known to enable commercial experts to estimate the result with substantial accuracy. It is the uniform practice of German hop farmers to underestimate their growing crop and to conceal its actual quantity until it is harvested and offered for sale. This is simply the peasant's traditional method of "bulling the market" by helping to create among dealers and consumers the fear of a short supply; but it usually has the effect of rendering the earlier estimates of even the best judges under, rather than above, the fact. Such has been the case this year. The weather during the whole of September was favorable throughout Germany, and the crop actually harvested proves to exceed slightly in quantity the estimates which were made during the earlier days of that month. The best-informed commercial authorities now calculate the hop crop of this year in the several German states as follows:

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*No. 145, p. 247.

	Metric pounds.
Prussia	3,000,000
Bavaria	27,000,000
Würtemberg	7,500,000
Baden	3,800,000
Alsace-Lorraine	7,000,000
Total	48,300,000

This is about 1,500,000 pounds more than the crop of 1891 and 4,248,000 pounds less than the average total annual yield during the past ten years. In respect to quantity, therefore, the German hop crop of this season is somewhat below the normal figure.

As to quality, it can now be finally stated that fully one-half of the entire German product is of a high and excellent grade. Of the remaining half a large proportion will rank as of fair middling quality; the rest is of varying degrees of badness, the result, mainly, of one cause, viz, sunburn, which, in many fields, turned the hops quite red in color and practically destroyed their value for all purposes except the manufacture of the dark beers of Great Britain.

As late as the 15th of September the English hop crop was estimated at 48,000,000 pounds, but the close of the harvest showed a total product of from 40,000,000 to 42,000,000 pounds; and this deficit has brought to Germany a swarm of English buyers, who are purchasing heavily the inferior grades of the new German crop. Notwithstanding this, the market is normal and steady. No German dealer will admit that there is anything in the situation which should justify the expectation of higher prices than those which now prevail. The farmers are to a large extent holding their crops in expectation of an advance, but the merchants are in a conservative mood and not disposed to buy much for speculative purposes. The result is a rather quiet market, with prices ranging all the way from 120 marks per cwt. for ordinary qualities to 200 marks and even higher for the choicest product of the "Spalter Land," a small district in Bavaria which produces annually from 15,000 to 20,000 pounds, which are to the general hop product of Germany what Château Lafitte is among the claret vintages of France.

FRANK H. MASON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Frankfort, October 5, 1892.

CAN TRADE AND HOW TO SECURE IT.

EPORT BY CONSUL FECHET, OF PIEDRAS NEGRAS.

of this report is so comprehensive that a full discussion of it
old details must embrace the whole wide range of trade rela-
litions between the Republic of Mexico and the chief com-
of the world.

loubted if any one person possesses the wide general informa-
cal knowledge of all the details of each branch of trade to
discuss the large subject exhaustively and intelligently. A
e to set about this work and give sufficient time to each indi-
of trade to master its most minute details. Knowledge of
chnique of trade, and in many cases can not be secured with-
coöperation of merchants dealing in the articles about which
sought. This coöperation is not always possible. In this
t there is not a single American commercial house. Trade is
hands of Mexican, French, German, and English houses, and
xpected that these European commercial houses will advocate
between the United States and Mexico.

n merchants are ready to buy in the cheapest and best markets
They have no predilection in favor of European markets;
k to place their orders to the best advantage for themselves.
illustration of the requirements of consumers in Mexico is dif-

POPULATION.

tion of Mexico can be divided into two classes—the well to
r. The former consist of descendants of Spaniards, with little
e of aboriginal blood; the latter, and by far the most numer-
full-blooded Indians. The well-to-do class, numbering about
e refined tastes. A great many have traveled in Europe and
tes, and it is noticed that on returning from foreign travel they
eign ideas and new wants. They are ready buyers of all
their taste, meet their wants, or catch their fancy; the sole
heir ability to buy the desired article, the cost of which in
y double that at places of production. So the well-to-do class
heir requirements, are much the same as the same class in our
e poorer classes are a simple, primitive people of few wants
es. Save a few tools and a few cheap trinkets, this class con-
les of foreign manufacture, and their wants are met by their

ively long experience in the Republic of Mexico, traveling
most primitive regions and its chief cities, seeing the people
nd mingling with high and low, induces me to believe that
ion is responsible, primarily, for the very small and rather

slowly developing demand for the luxuries and artificial wants of mankind. By lack of education I mean an ignorance of the very existence of such luxuries as are familiar to the poorest of our eastern cities. "What the eye sees not" applies here as elsewhere.

New wants, tastes, and desires are quickly acquired, and I would say to the American merchant and manufacturer seeking Mexican trade, come here, establish your warehouses, your sales rooms, and stores; display your goods, explain their uses, advantages, and adaptability to Mexican needs; and, above all, be patient. New avenues of trade are not built up in a month or a year. American goods are not sold in Mexico chiefly for the reason that the goods are not here to be purchased.

The current belief that Mexican buyers can not obtain in the United States markets certain classes of goods that are especially manufactured in Europe for the Mexican trade should be received with limitations. If conceded at all, it is the result of our country being young and demanding for its own consumption the greater part, and until lately—since the development of our manufactures—all of the output of our factories, causing our merchants and manufacturers to neglect outside markets that the overcrowded European countries needed as outlets for their productions. The great commercial countries of Europe long ago began to seek outside markets. Their agents, especially the Germans, settled here in Mexico, learned the customs and language, and entered into the social life of the people. They brought over what was salable, but did not attempt to create any new or artificial wants; they simply catered to existing needs, and now, as the people are advancing in knowledge and discovering new wants, they possess a great advantage over newcomers, and, their natural sympathies being with their home country, they buy there when possible.

EUROPEAN COMMERCIAL HOUSES.

All European commercial houses trading with Mexico have clerks who are perfectly familiar with the many requirements of the Mexican tariff, and this accurate knowledge, united with the ability to conduct a commercial correspondence in Spanish, can be stated without exaggeration to be one of the chief causes of the preference given to European goods by Mexican buyers.

While it is admissible to have consular invoices written in the language of the exporting country and have Spanish translations made at the Mexican custom-house of entry, it is rare to see invoices of European goods written in any language but Spanish.

European exporting houses not only have clerks able to write out the invoice in Spanish, but able to prepare the invoice in proper form as to classification for presentation at the Mexican custom-house. I have not infrequently known Mexican merchants to request of their correspondents in the United States "to please write in Spanish," alleging that the necessity of having translations made involved the risk of errors and misunderstanding through

al or business knowledge on the part of the translator, and
al business secrets.

with Mexico is worth having and worth striving for in active
h Europe, it is surely worth the additional salary of an em-
vith Spanish. European firms dealing with Spanish-America
nd in Spanish with their customers, unless they belong to
nality.

chants dealing with Mexico and Central and South America
nen applying for positions if they speak Spanish, and it will
before greater attention is paid to the study of this useful

MEXICAN TARIFF AND CUSTOMS RULES.

evenue is chiefly derived from customs imposts, sale of stamps,
taxes, and hence the importer and merchant have to pay
y the larger portion of the money needed to meet the ex-
deral Government, and hence, also, we have in Mexico a high
for revenue. Every business man seeking trade in Mexico
a copy of the Mexican tariff and make a thorough study of
s of the law. As the subject is so extensive, I would recom-
erican merchant to limit his study of the tariff to the classes
in which he trades. There are general rules in the tariff ap-
portations that merit close examination.

tariff, recently promulgated, is a great advance over all former
ication and reduction of classification, and it possesses, also,
ntage of explanatory notes to guide importers and customs
etermination of the proper classification of the importations.
ties are specific, and, with few exceptions, all importations
eight. Weights are divided into three classes, viz, gross
o), and legal (*legal*). The first two need no explanation,
ight is especially a feature of the Mexican tariff, and is the
ticle, with that of the bottle, pasteboard, wooden, or tin box,
ves as a wrapper or holder of the article in its ultimate or
, and not including the weight of the outer larger box, case,
ich the smaller packages are contained or the straw, excelsior,
s used to prevent injury in transportation. To illustrate:
le, a box containing a dozen quart bottles of mineral water.
ch bottle will weigh 2 pounds, or 24 pounds for the dozen;
l weigh 1¼ pounds, or 15 pounds for all, and the outer or
will weigh 8 pounds. Then the gross weight is 47 pounds,
is 24 pounds, and the legal weight 39 pounds.

of importations pay upon weight, and mostly upon gross or
t will be readily seen how great is the importance of using a
g as light as consistent with safety in transportation. The
packing is less forceful when duties are imposed upon the
t then becomes a question of a little extra railroad freight,

save in cases where the ultimate destination of the shipment is to a beyond the line of the railroads. The last exception needs less con tion, owing to the rapid extension of railroads in Mexico. Most all larger cities of the Republic have rail facilities, and in all these cit large importing houses that are depots and distributing centers from remoter towns beyond the railroads are supplied. At these cente needed repacking to meet the requirements of mule packing and mo trails will be done; so that our shippers of goods to Mexico need onl sider the matter of packing in relation to weight as affecting duti thereby the cost.

It is very important that each package should bear its mark and n so as to be easily distinguished. Old marks and numbers should b fully erased, because there is a fine up to $1 for each package havin than one mark or number or if the mark or number does not correspon that indicated in the consular invoice. The importance of carefully ing and numbering is also due to the practice of generally examinin tenth of the number of packages, and the inspector designates by ma number those to be opened.

The rules for preparing consular invoices and manifests are very and should be carefully studied. Any omission or error, even cleric poses the liability of a fine.

As a rule, Mexican merchants, when ordering goods, are very pa in their directions how goods should be packed, labeled, marked, etc. may often appear trifling to manufacturers in the United States, bu should remember that their own business experience may widely diffe long-established practices in Mexico.

CUSTOMS FINES.

It should be constantly borne in mind that the Mexican tariff i severe in the matter of fines, and hence it will be well in all cases t importations made by experienced customs brokers.

The practice of giving a portion of the fines imposed to the offic discovers or reports the cause of a fine acts, naturally, as a strong tem to discover all possible errors in the classification of the entry. C officials consider only facts, and not the intention, and the enumera the cases in which fines are to be imposed is very large.

Another important consideration is that the customs officials w express an opinion upon the duties any given importation should pay dicate the proper classification and manner of declaring the impor Whenever goods are not plainly specified in the tariff and there is th doubt as to proper declaration and classification, the best way, in a of importation, is to send samples to the secretary of the treasury, Mexico (Secretaría de Estado y del Despacho de Hacienda y Crédit lico), or, if samples can not be sent, cuts showing kinds of goods a description of same should be sent in lieu of samples for a decision.

WEIGHTS AND MEASURES.

system is the legal standard for weights and measures in frequently happens that the old Mexican weights and meas- nd hence it will be well to remember that there is a slight een the Mexican and English pound and that the Mexican than our English inch. The measures for cereals differ also States of the Republic.

tion of the commercial advantages arising from the use of em in our foreign commerce suggests the conclusion that our ghts and measures are stumbling-blocks to our Latin neighbors, ce we seek.

y lose considerable trade with Mexico and the other New owing to the presistent use by our merchants and manufac- nglish weights and measures in their circulars, catalogues, and ese lists are not infrequently unintelligible to the foreign been in a large exporting house in New York city and found tally ignorant of meters, kilograms, etc. Our French, Ger- an competitors all use the metric system, and Mexico and all the New World south of us use it. The use of the metric norized by our laws many years ago, but, as it was not com- l cling to the old system.

CATALOGUES, CIRCULARS, ETC.

d that our merchants and manufacturers desiring to extend ond home markets and to countries using the metric system base descriptions of their goods and estimate prices upon the This having been done, let the circular, catalogue, and price nguage of the sought-for buyer, and not in English; then eign buyer will be able to understand all the details as to ement, and price of the goods he is solicited to buy.

SOLICITING TRADE—COMMERCIAL TRAVELERS.

rcial traveler or agent, to be successful in soliciting trade co, should be a gentleman in manners and address and should luently. The Mexicans are a polite and formal people in houses, as well as in their homes, and often do not understand iar manners of other nations. Politeness, patience, and tact, trade knowledge and ability to speak Spanish, will sell goods oods are not sold in Mexico in the quick way of our own l days of chat and social intercourse often precede the clos- large bill of goods. Many questions must be asked and d; this is especially true when the Mexican buyer knows but can goods, and this ignorance is unfortunately but too com- e questions to be answered, the commercial traveler must t, size, and all the subdivisions his goods may present; man- , sometimes the measurements (cubic or square), rates of freight from the United States to the town where he offers them for customs duties, rates of exchange or difference in value between Me and United States money. In other words, he must be prepared to at short notice how much the goods he would sell will cost, laid down door of his customer, making proper allowances for possible addi customs charges, brokerage, and municipal taxes.

Without going so far as to state that all of the above requiremen absolutely essential to success, it can be safely stated that the comm traveler able to figure quickly within a few cents one way or the othe cost of his goods delivered will get the order in preference to anothe who, when asked, "What is the rate of freight, of exchange, the weigh duty, packing, etc.?" can only answer, "Don't know." Every mer worth dealing with in Mexico keeps a "book of costs," in which figured the cost prices of all his goods; and he can tell you very q how much the same article has cost him at different times, from dif sources, and at different rates of exchange.

It is very clear that the merchant, looking over samples, catalogue price lists, can make his selections to best advantage when the soli commercial agent or traveler can answer his many questions fully and tically.

Mexico, since the introduction of railroads, has wonderfully imp and advanced. Life and property are safe. Any foreigner showing respect to the laws and politeness to the people will meet with no di ties and encounter no danger in the orderly pursuit of his business.

LICENSE TAX.

Commercial travelers should always ascertain, before soliciting ord a town, if there is a license tax to be paid. Of late years certain have imposed a license tax on commercial travelers, amounting in cases to $150. It is almost certain that a considerable reduction c obtained by promptly applying to the town authorities for permissi exhibit samples and solicit orders for a specified time.

Samples brought to Mexico by commercial travelers are subject t if in such shape as to be salable merchandise. Duties may be sav allowing the customs officers to cut or deface the samples so as to be u ble, but still available as a sample with which to solicit trade; or a for double the duties, to run six months, may be arranged, and withi six months samples must be returned to the custom-house and the bon then be canceled.

COMMERCIAL CREDITS.

It is believed that the most important subject affecting the whole question of trade with Mexico is that of commercial credits. It ma unreasonably be called the very corner stone of the entire structure. credit system prevails throughout the Republic; the larger importing buy on credit, they again sell on credit to the smaller tradesmen, w turn, sell to the final buyer (consumer) on credit.

great advantages offered to Mexican buyers dealing with
is the long credits given to them, ranging from three to
ith interest barely exceeding 8 per cent per annum, and very
as 4 per cent. American houses, as a rule, insist upon
sight draft attached to bill of lading, and it happens not
goods are paid for before the shipment is received.

n Mexico can not, as a rule, be used, as in the United
information as to the commercial standing of business
business houses have deposits in the banks, and, if any, are
In most of the smaller towns the bank lends money at
terest and only upon the best security, and their conven-
ess houses are very limited, consisting in most cases in
ptances and providing exchange on foreign countries.

of giving credit is so deeply rooted all over Mexico that
nodities can be sold upon a cash basis. Business houses
m four to six months' time on the most insignificant sales,
rying with the class of goods. It should not be overlooked
f a bill of goods upon long time has nevertheless a large
ake for freights, customs duties, etc., often largely exceed-
gate the first cost of the goods. When a merchant finds
o make his payments at maturity, an extension of time is,
secured with the charge of 1 per cent interest monthly.
e majority of the larger firms is engaged largely in their
unt, and when times are bad, as is now the case in Mexico
of drought, collections are made with difficulty, and ex-
have to be granted to almost all the creditors in the smaller
rn, have been unable to collect from their customers, ow-
of crops, loss of stock on the ranges, etc.

ntrast what the American and European commercial agents
nake them buyers. After showing his goods the American
s as follows: Cash, sight draft attached to bill of lading or
, in rare instances, at ninety days, with the acceptances
s are delivered at the seller's railroad station for shipment
yer. No matter what the rate of exchange may be when
nted, it must be paid or it is protested. Delays in the
s are not taken into consideration. While it may be as-
ost cases carload lots will reach destination within thirty
of shipment from the United States, smaller lots will take
that the time granted by the United States firms is mostly
ods are received, and hence it amounts, in the majority of
xican buyer, to a cash-on-delivery purchase, if not more,
are delayed. Now, if the Mexican merchant buys of a
if he is trusted at all, he can, after a few transactions, have
ishes by paying a moderate annual interest of from 4 to 8
ys then at from four to twelve months' time. The steamer

carrying his goods may be delayed a few days by rough weather, but weeks by washouts, snow blockades, strikes, errors in routing, etc., an freights are lower than all-rail freights. The Mexican buyer can thus his own customers the three to four months they require.

Although there is no Bradstreet or Dun's agency in Mexico, Euro firms are generally well informed about the financial standing of Me houses. There are so many Europeans established in Mexico that it is to obtain reliable information through them, and, besides, the num commercial agents sent out make it a strict rule to gather all the inform possible as to the standing of Mexican houses, and these agents take ba Europe well-formed lists of firms and amounts of credits that may safel given. Business failures have been more numerous lately, owing to the eral depression of trade caused by failing crops and losses of live s but, as a rule, business in Mexico is upon a very conservative basis, an bankruptcy laws are so severe that failures are more dreaded than wit The European houses with branches in Mexico possess a greater adva still; as they have their own representatives right here in Mexico, the kept well posted as to the financial standing of buyers.

This question of credits is of the utmost importance to United S manufacturers and export houses wishing to successfully compete with pean houses for Mexican trade. It must be admitted that much succes already been achieved in modifying or changing the old business met that have so long prevailed in Mexico, but much remains to be accompl before cash transactions can become the general rule, and, so long as pean houses offer long credits, the scales will turn in their favor.

EXCHANGE.

The present high rate of exchange influences merchants to buy as a stock of goods as possible, lest a lowering of the rate of exchange w entail a heavy loss. It is very obvious that a buyer figuring upon profit of 10 per cent upon his sales will not lay in much stock when exch is at $1.40, with a possibility that before he has disposed of his stoc change may stand at $1.25, as his competitors buying at the latter rate undersell him, even should he sell at bare cost. An equitable and co ient arrangement to propose to the Mexican buyer afraid of taking chances of wide fluctuation in rates of exchange would be to have them Mexican dollars for American dollars on the face of their bills, gra them time, not to exceed six months, within which they could pay the ance at whatever more convenient rate of exchange might obtain.

COMMERCIAL GUARANTIES.

A Mexican merchant wishing European credit gives as references merchant in his own town or some well-known Mexican or European in the country he wishes to buy from. In very few cases the refe comes from a banking house. The references are most cautiously g and with them the desired credit is, as a rule, obtained. As the osits of any large amounts from the merchants, they would ing or solvency of a merchant except in isolated cases and its are made to have value of the goods deposited in the could be worked out in detail and might, it is believed, in ess transactions easier and do away with or mitigate the o honor a sight draft for goods not yet received and that r several weeks after the payment of the draft.

RATES OF INTEREST, TIME, ETC.

interest and discount mostly prevailing in Europe for Mex- er cent per annum. The usual time is from four to eight a firm is well known the privilege of selecting the most remitting is easily granted. Time of credit commences of lading.

ime of merchandise in transit to Mexico from European n six to eight weeks by all steam routes and twelve weeks if landed at a Mexican port; if shipment is from Europe or Galveston, from three to four weeks must be added to t. The time would seem to be fast approaching when the will be the landing port for European shipments for north- lso for a large part of the American shipments. By water carload lots enjoy the same through rates of freight as and the saving is considerable.

an houses with branches or correspondents in Mexico are Mexican products, and this creates an exchange beneficial to

BANKS.

utions upon the American plan, *i. e.*, a bank ready to help rises and to accommodate merchants offering proper col- ith money at a moderate rate of interest, would be a source d would undoubtedly impart a wonderful impulse to the n the two countries.

RAW MATERIAL.

lar district there is no demand for foreign raw material, n. Cotton to the extent of 6,000 to 10,000 bales is im- United States annually at the port of Piedras Negras to mills.

PRICES AND FREIGHT RATES.

ort has been made to secure a reliable comparison of Euro- an prices of the same articles. Many difficulties have been the few comparative prices obtained are so surrounded cumstances that no value attaches to them. Merchants will r price lists, but hesitate to produce their line of discounts.

This hesitancy arises from the vicious practice of some foreign houses granting different discounts in the same town to different buyers; each buyer is led to think he has been given a special discount. Comparisons of prices should be made upon articles of trade alike, or as nearly so as possible; this is difficult. Cotton and wool piece goods vary in width, number of threads per square inch, and in weight per yard.

The condition of freight rates from the chief seaports of Europe and of the United States has not been to the advantage of American trade. Sea freights have been less than all-rail rates in many cases. Merchants have told me that their freight bills from Hamburg were less than from New York. These circumstances are fast being arranged, however, so that our American traders will not have to contend against freight rates favoring their European rivals.

ESTABLISHMENT OF AGENCIES.

In closing these preliminary remarks I would emphasize my firm belief that the American does not sell his goods in Mexico because he does not adequately try. Let him work as shrewdly and as energetically as the European trader and there is small doubt that he will find the commercial harvest satisfactory. The Mexican people collectively are very ignorant concerning the United States. This ignorance must be dispelled and many causeless prejudices removed. Time and tact, joined to liberality and honesty in commercial relations, will achieve all we desire. To extend our trade with Mexico we must show the people the advantages we can offer them. This first and indispensable step seems easy and practicable. Let our traders (merchants and manufacturers) establish joint agencies in the chief cities under the management of capable and energetic men speaking Spanish and knowing the people, expose their goods at these agencies, and explain their uses, advantages, and adaptation to Mexican needs. Connected with these central agencies should be several agents soliciting trade over certain territory. Policy would suggest that these agents sent out to solicit trade should be young Mexicans of business training. Such a system must succeed, and in no other way can we successfully attack the supremacy now held by European dealers.

BLEACHED AND UNBLEACHED COTTONS.

With the exception of the free-zone territory, where relatively large quantities are consumed by reason of the duties being but one-tenth of the full duties, it may be said that Mexico offers but a very limited field for sales of bleached and unbleached cotton domestics.

Of late years the best American and English spinning machinery has been imported and cotton mills established in Mexico, and a very good grade of cotton cloth is now produced. The almost prohibitory duties make it a profitable investment, even when using American cotton paying 8 cents per kilogram gross weight, or nearly 4 cents per pound.

COTTON PRINTS.

lls first manufacture and then solicit orders for their stock. ianufacturers reverse this method and first solicit and then Zuropean manufacturers send out patterns, designs, and with samples of all the different grades of gray cloth (unics) made. The buyer first selects the gray cloth of a qualest suited to his local trade and then selects the design or to be printed upon this gray cloth after bleaching; thus s exactly what he wishes, as determined by his own experies and needs of his customers. In the United States he can this way; he can only buy from stock, and even then he the fixed proportions of colors and designs of the original nerican print mills will consent to manufacture from special er must be large, while in Europe the minimum for a speyards.

ers claim that European houses are more accommodating houses in following out their suggestions in making up spe r example, an American firm sends out samples of prints to ner; he examines the quality, design, and color, and likes estigating what the cost will be, finds that the sample, inonly up to thirty threads per square millimeter (about one inch), has thirty-two threads counted both ways. The vill write to the American house: "I am pleased with your so and so in color, design, and quality, but, as it carries ds to the square millimeter, the duty will be 15 cents per hereas if it carried but thirty threads the duty would be but could sell it readily; could you therefore manufacture so as 3 cents duty per meter?" The reply probably would be: arranged to turn out that number of threads, and can not In Europe, on the contrary, such a suggestion would be re valuable bit of trade knowledge and all dispositions at anufacture in conformity with the suggestion, and the prob the European house will send out two very different grades nts—one carrying the maximum number of threads permis 2-cent duty and the other of finer grade containing all the square will carry, so as to make it worth the extra 3 cents

id significant illustration of some of the peculiarities of nay be cited. A merchant observes that his competitor ad fabric at 25 cents per meter. Through a friend he buys a after measuring it, finds that by reducing the width a few ndersell his rival. If he writes to an American house to s manufactured equal in all respects, only narrower than the nces are that he will not be accommodated; whereas if he addresses himself to a European house he will be told that his order filled if he will take a certain number of pieces—the minimum is ge 200 yards.

It would be manifestly absurd to claim that our manufacturers change their standard sizes to meet the special requirements of eve tomer; but would it not be practicable and wise for our print manufa to send out a man to make a thorough examination of the tastes and of the Mexican market? The samples manufactured from such p observation and study would be sure to please a majority of buyer should changes still be necessary, they would not touch points so im as those of weight, number of threads, width, and finish of goods, experience gained would amply repay the expenses of such a tour of vation.

The home factories are turning out some fabrics in cotton prints constantly improved upon. While American prints are superior in design and colors to the home product, it will soon be possible only port prints of special designs and fine finish too difficult and expe produce at the home factories.

The trade with Mexico in American prints has largely increased years, owing to the improvement in colors, designs, and varieties terns.

WOOLEN PIECE GOODS.

The home factories are turning out the articles chiefly used by the classes, such as blankets, serapes (shawls), and ponchos. These arti often cheaper in Mexico than in the United States, and are well p by the tariff. The finer grades are in good demand, especially in but are principally imported from France and Germany, because than in the United States. Ladies' shawls, known as "rebozas," wool are largely imported.

Duty on woolen piece goods is calculated on the weight of a squa (about 30 inches square). Fabrics weighing about 8 ounces per meter would pay comparatively the lowest duty of 45 cents per square It is well to remark that both lighter and heavier grades than 8 oun higher rates of duty.

When sending samples of woolen goods, the weight, according ratings, should always be very carefully stated as a guide to cos Mexican Government, by its high tariff on woolen goods, is fosteri important industry.

THREAD AND WORSTED GOODS.

Home factories have been started and are producing a fair grade of The demand for these lines of goods is limited, and the duty of a cents per pound checks any great development.

European common and fine grades of thread goods are sold so that competition will be difficult. Home-manufactured worsteds

, but meet well the wants of the middle classes. European
of the better grades are so far the only ones imported, and
hich they can be brought leaves a small competitive margin
nufacturers. Belgium and France furnish the finest grades
heap imitations, mostly printed.

SPOOL AND MACHINE THREAD.

plies Mexico with spool and machine thread, and the name
ts is so well known that, in so conservative a country as
be a difficult matter to compete with them. The consump-
e, however, and it would seem that the field is worth con-
uld receive more attention from our thread manufacturers
e dealers are making small profits, and would welcome com-
f thread from the United States.

TWINE AND CORDAGE.

he field is not promising. Mexico abounds in vegetable
xtle, etc.—and under the protection of a prohibitory duty
have been started in many places.

s concerning twine apply to all cordage under 1⅛ inches in
ve 1⅛ inches in diameter all cordage is classed as cables, and
ty. The best comes from England, and is cheaper than in
es.

n of the Mexican tariff devoted to the various articles em-
otton and woolen piece goods, thread and worsted goods,
ine thread, twine, cordage, etc., and including silks and
st elaborate part of the tariff, and a thorough study of the
ispensable to our manufacturers. In many cases very slight
suffice to class an article under a much higher rate of duty.
he Mexican markets observed by European manufacturers
e "cheap articles with a neat appearance." The tariff is
most instances the cost to the consumer is double and treble
t.

SILKS AND RIBBONS.

he great bulk of importations of silks and ribbons is from
, England, and Germany leading in these lines.

re very high, both upon all-silk fabrics and silk-mixed goods,
sumption is large, this trade is worth contending for; and,
eat progress made in silk manufactures in the United States in
years, no reason can be advanced why the United States
ly Mexico with silks, silk-mixed goods, silk hosiery, and
nited States now produce more silk goods than England
d are only rivaled by France.

d in durability our plain silks are equal to Lyons silks. In
caded silks, the Mexican merchants tell me, France leads,

but we are rapidly catching up. In ribbons we excel and should supply Mexico, and the same is true of velvets. I know of no peculiar color, design, or width called for by the Mexican trade.

I have been astonished to find many Mexican merchants ignorant o fact that silk goods are even made in the United States. Whose fault The trade is here awaiting our American enterprise. I firmly believe only to be worked up to yield large results.

CARRIAGES, WAGONS, TRUCKS, ETC.

With the exception of a few very fine carriages imported from Euro use in Mexico city, practically vehicles of all classes come from the U States. The tariff is quite plain and very high. The tendency seems to help out home industry by putting half of the regular duties upon riage "in the white," and with this concession it is probable that M as a market for finished foreign carriages will be confined to the classes. The tariff defines carriages "in white" to mean "those woods are unpainted and unvarnished, and whose cushions and other mings are so incomplete as to need hand labor to fit them for use."

The facilities afforded to the Mexican home factory by the reduct one-half of the regular duties when carriages are "in the white" will a large demand for this class of goods, and the attention of our ca manufacturers is called to this fact.

Carts without springs, spring delivery wagons, and hand and cargo pay upon gross weight, and hence they should not be crated, and, if ble, should be prepared in such a way as to leave out the boxes or sid end boards to be made up of native lumber. Road wagons, sulkie dogcarts are classed as carriages, and, on account of their light weigh comprised in the highest class of duties; in some cases the duty is six the original cost. The duty on carriages, and as such are to be consi all vehicles with springs not exclusively adapted for transportation of chandise, is graduated according to the weight, the heaviest payin lowest rate of duty. The study of the tariff will, in many cases, cau carriage-maker to add a few pounds to a certain carriage to attain a duty. For example, a carriage weighing up to 500 kilograms (about pounds) would pay 50 cents per kilogram duty, whereas one weighin kilograms would pay only 45 cents duty, or a saving of $20.50 in du increasing weight 10 kilograms, or 22 pounds.

As a general rule, all vehicles must be of stronger make for use in M than in the United States. The roads and street pavements are roug very hard on vehicles.

American buggies, phaëtons, and surreys are all popular in Mexico. high duties are the only bar to extending demand, and it is believe our carriage-makers might well establish finishing shops for painting, va ing, and trimming carriages at central points and import their carriages the United States "in white," or unfinished.

DRUGS, CHEMICALS, DYESTUFFS, ETC.

years ago there were hardly any drug importations from the Recently some pushing, energetic firms have sent agents to g Spanish and well acquainted with the trade, and it is astonat good results have been accomplished. American prepaecially proprietary medicines, are now seen in most drug and now to a great extent, French patent medicines were demand or known.

ajority of drug stores are owned by practicing physicians, amiliar with French prescriptions, having used French texttudies, and they give the preference to French drugs.

patent medicine is less than in the United States, relatively, gher duties. Sulphate of quinine is now lightly taxed, and d largely imported from the United States.

ception of Florida water, imported in large quantities and ocers, few articles of perfumery are now imported from the Perfumery is from France chiefly, and, in spite of high used.

scented soaps can not be imported, on account of duties. s are heavily taxed, and demand for them is confined to the Cocoanut soap can be imported, as it pays the light duty of logram gross weight, and is very largely used in Mexico for Medicinal soaps fare better as to duties, but shippers should at they call medicinal soaps are so classed by the Mexican tariff is a great improvement on former imposts, and the es are of the greatest help. Nothing is harder than to prean customs papers for an invoice of drugs. The danger of at, and an exhaustive study of the tariff is needed.

requirements of the country, drugs, whenever practicable, scriptions and directions in Spanish. French drug houses panish some very elegantly illustrated catalogues, with every colors, and an ingenious scale allows actual size of goods d weights are given.

ted into Mexico should have their Latin names upon packages. drugs, etc., should be as light as consistent with safety in as the weights of flasks, bottles, pasteboard boxes, and all ngs are included in the weight of goods paying duties upon

in drums is very largely used throughout Mexico in soapnes exclusively from England, because cheaper; and, unless e can be met, this large trade must remain in English hands. of cotton-seed oil from the United States were imported for ior to November, 1891, when a duty of 5 cents per pound d imports have almost ceased. Disinfectants, hide poisons, are on the free list, are largely used, and chiefly come from the United States. Hops are on the free list; but English, Bohemian, and Bavarian hops now supply the demand. The large number of breweries being established in Mexico will greatly augment the hop imports, and the Mexican market may well receive the attention of hop-growers in the United States. The demand for dyestuffs is very small, as home dyes supply the needs of home industries.

FOOD AND FOOD PRODUCTS.

Corn, cereals, meats, and flour of all kinds are now virtually excluded from all parts of Mexico, save the narrow strip of country called the free zone, on account of a prohibitory tariff. Sugar is also excluded for the same reason. Molasses and sirups are imported to a limited extent, chiefly for the American residents.

Preserved and conserved fruits in tin or glass carry an excessive duty, and consequently the trade in these articles is limited. The duty upon a 2-pound tin is 75 cents. Our American canned fruits pay the same high duties as preserved and candied fruits that are chiefly imported from Europe. Canned vegetables, pickles, and sauces can be more largely imported, as the duty is about 8 cents per pound. French, German, and English products are more common in Mexico than those of the United States, but from an investigation of prices and qualities it is believed our American canned articles can successfully compete in the Mexican market, and should be pushed, as the field will repay the effort.

Condensed milk is from the United States. The demand is limited and largely confined to American mining camps, railroad construction gangs, etc.

Crackers have a fair sale, especially the sweet fancy crackers, and should be shipped in very light tin cases, as the duty is 7½ cents per pound gross weight.

Potatoes, onions, and apples come from the United States and find a good market.

Dried and evaporated fruits are much cheaper in Mexico than canned goods, as the duty is but 5 cents per pound net. There is a complete lack of fresh fruits in the northern half of Mexico for the greater portion of each year, and the demand for evaporated and dried fruits from the United States is very good and may be very greatly developed.

Potted meats and game under the former tariff were fairly in demand, and with the duty now reduced to 8 cents per pound, including weight of tin or can, the demand will be largely increased. European potted meats command a well-deserved reputation, but some of our American specialties in this line are well abreast of the European in regard. "Deviled ham," for instance, is everywhere well known, and under the name of "Jamon del Diablo" (Devil's ham) finds a ready sale. Boneless hams in tins can be imported and sold cheaper than hams in canvas. Potted meats from Europe are generally packed in glass with tin covers, and this mode of packing is preferred in Mexico, as tin is believed to be dangerous.

nd oysters are on the free list. Corpus Christi, Tex., has this line, but with the opening of the Tampico route fresh an waters is coming in. Canned and smoked salmon from large demand, and the trade admits of great expansion if pushed.

, and sausage pay about 10 cents per pound duty. For ierican products there is a good demand, especially in the Recently packing houses have been established in several an cities by firms from the United States, and large importa- gs from the United States are made, notwithstanding the ½ cents per live pound. The packing houses are putting a the market, and it will be only a question of time when bacon, and sausage will be a rarity in Mexico.

duty of 10 cents per pound, which is prohibitory, and the ng houses established in Mexico control the lard market na libra.

s and cans is imported in lots ranging from 5 to 50 tubs at enetally oleomargarine or butterine. Good dairy butter re- to 75 cents, and the scarcity of pasturage makes the home ited. Some French and Danish butter is imported, the and the latter in tin; but there is no doubt that if Mexican l be convinced that American butter is not exclusively and margarine, good prime butter from the United States would rket, especially during the winter months.

HOUSE FURNISHINGS.

rotect the home industries the tariff in force from Novem- raised the duty upon common furniture. The better grades e, however, need not fear Mexican competition for years to has splendid furniture woods, but they are not properly a condition to be used by furniture-makers.

riff the so-called common woods, such as pine, poplar, oak, and gum, are admitted free of duty, and articles of furniture e woods have to pay 10 cents per pound duty; so that only nuch carving and molding and fitted out with mirrors and stand the duty. Native furniture is now turned out with no mirrors. Mirrors pay a heavy duty, but when imported ure they only pay duty of the furniture to which they belong. er hand, the so-called fine woods, such as cherry, walnut, d, etc., only pay a duty of 1 cent per pound, and articles of of the fine woods pay only 2½ cents per pound duty more e made from the common woods, or 12½ cents. Veneered sified as fine furniture. As a rule, Mexicans do not take es of furniture finished to display the natural grain of the lnut is their great favorite.

As already stated, marble tops and mirrors imported with the articles of furniture they belong to do not cause an increase of duty. In case of marble tops a saving of duty even can be made by declaring them separately, as the duty is lower on marble tops than on furniture. The reverse is the case with mirrors, hence they should not be declared separately, but left to pay furniture duty.

The new tariff is liberal, inasmuch as furniture is taxed by legal instead of by gross weight, that is, without including boxes, crates, straw, excelsior, etc., and this does away with the tendency to decrease weight of packing at the risk of injury to the furniture in transportation.

Willow and rattan furniture is prized and is chiefly supplied from the United States, but our American manufacturers of rattan, willow, and bamboo furniture have not made any attempt to secure this valuable market for their wares. The lightness, cheapness, and cleanliness of rattan commends its use above all other kinds. Vienna bent-wood furniture has a very large sale in Mexico, and is used when rattan could and would be if rattan manufacturers will display the same degree of enterprise as the German houses handling the Vienna bent wood.

Iron and brass bedsteads are in very great demand in Mexico; the people object to wooden ones, claiming that they harbor insects. Bedsteads prepared for sale in Mexico should always have mosquito-bar attachments. Iron and brass bedsteads are almost wholly imported from England, because much cheaper than in the United States, and until we shall make and sell iron and brass beds to meet English prices nothing can be done in this line. If iron bedsteads, nickel plated, could be made and sold in Mexico as cheaply as those of brass, there is hardly a doubt that a ready market would be found in Mexico, and it is believed that this possibility merits the attention of our manufacturers. Plain, simple, iron bedsteads, unornamented and made cheaply of gas pipe, which comes in free of duty, are made in Mexico.

In carpets, rugs, etc., there has been a decided change. Formerly dealers in first-class goods in Mexico only imported European carpets. Belgium, France, England, and Germany divided the trade. The finer grades of English carpets, such as body Brussels, Wilton, and Axminster, are dearer than corresponding grades of American carpets. Germany furnishes to the Mexican markets a cheap imitation of the higher grades of carpets and rugs and finds for them a fair sale. Ordinary and middling grades of carpets and rugs of wool are made in Mexico. The United States is the largest manufacturer of carpets in the world, and in design, color, and fabric they are equal to corresponding European grades. In Mexico the demand is more for large rugs than for carpets. Square and rectangular rugs, to well cover the central portion of large rooms and made up in tasteful designs and colors, will find ready sale in Mexico. The duty is very high, and, as it is levied on the square meter, the best grades are least affected by it.

I would suggest to our carpet manufacturers that they send a skilled carpet man on a trip of observation to the chief cities of Mexico to note the patterns, colors, and grades most in demand. The trade results to flow from such a tour of observation will well repay the expense.

Picture frames and ornamental moldings are subject to a very high duty, and, in order to reduce it to a minimum, only shell goods, that is, thin strips to be afterwards nailed to a heavier frame, should be imported. Some frames and moldings are made in Mexico, but so far the plaster covering and gilding have not been successfully accomplished, and the demand hardly warrants the investment of money to achieve perfect work.

Furniture "in the white," that is, unpainted and unvarnished, pays a little less than 4 cents per pound duty, which is less than one-half what the finished articles pay, but it should be borne in mind that no bent, carved, turned, or cane furniture or mirrors or marble tops are considered as coming under the head of furniture "in white."

HARDWARE AND CUTLERY.

The following table will show the origin of the several articles imported under this head:

Articles.	From—
Cutlery	Europe.
Shelf hardware	United States and Europe.
Cut, wrought, and wire nails	Do.
Axes, shovels, hoes, and picks	United States.
Locks, bolts, and hinges	Do.
Iron and steel in bars and bolts	United States and Europe.
Plate iron and steel	Do.
Corrugated iron	Europe.
Stoves, cooking and heating	United States.

The demand is daily increasing for United States lines of hardware and manufactures of iron and steel.

English and French cutlery of fine grades and German cheap grades is well introduced throughout Mexico, and it will be very hard for our cutlery-makers to compete in price with European cutlery, especially with the very cheap German grades. In competition with the finer English grades we must show that American grades are equal, if not superior, and as cheap. In competition with the German cutlery only price has to be considered, as the quality is inferior to anything manufactured in the United States.

There is a growing demand for building and furniture hardware of American make, and several of our large hardware firms have already built up a profitable trade in Mexico, notably New Orleans and St. Louis houses. Much energy and trade skill, combined with tact and readiness to offer liberal accommodations in credits to reliable houses, will be needed; for the hardware trade of Mexico is almost exclusively in the hands of Germans, who are shrewd traders, and in the struggle to retain their control of a valuable line of trade will be well backed in Germany by long credits extended by the parent houses to their Mexican branches or correspondents.

Arms, shovels, picks, hoes, etc., are on the free list, and large quantities are imported from the United States; but the trade can be quadrupled.

Nails of all kinds are imported from the United States and Europe, with the balance in favor of the United States. As the quality of the American nail is generally unexcelled, the cost is all that has to be considered. First cost and freight are the factors of ultimate cost, and the low water freights often make the European nail cheaper than the nail from the United States.

It is now generally admitted that American tools take the lead in point of handiness and good make, and the Mexican artisan wishes good tools. He was originally content with poor tools if cheap; but he is rapidly learning that poor ones are dear, and that good tools are cheaper for a poor artisan to buy, even at higher first cost. On tools the tariff of November, 1891, was reduced to 5 cents per kilogram, or one-half of the old duty. This should mean more tools from the United States.

Iron and steel in bars, plate iron and steel, and angle and T iron are imported from the United States, but more largely from Europe, owing to cheaper first cost and lower freight rates. Corrugated iron is used in very large quantities, but it comes almost exclusively from England, because cheaper. At present the difference in price between English and American corrugated iron is about 1 cent per pound in favor of the English, and until the difference shall have been overcome the English brand will hold the market. With equal prices the American brands will possibly be preferred.

Barbed fence wire is very extensively used in all the northern part of Mexico and comes exclusively from the United States.

It is reasonable to predict that before many years the United States will sell all the hardware in Mexico, save a few specialties from Europe. The Germans, who now control the hardware trade, will fight hard to retain trade supremacy, but they will probably be compelled to buy more largely from the United States.

An American hardware store in combination with all lines of agricultural tools and machines will do well in any of the larger Mexican towns.

HEMP AND FLAX MANUFACTURES.

There is very little demand for hemp and flax manufactures, with the exception of ropes of large size. Whatever importations there are come from Europe, because cheaper.

Jute bagging is extensively imported from England (largely in bonded transit through the United States). Ore sacks of jute are largely imported from England and frequently directly from Calcutta. Ore sacks must be made extra heavy; the sizes vary with weight and class of ores to be shipped. A finer grade of jute fiber has been made into flour sacks and will replace the flour sacks of domestics, provided the cost is the same. To be admitted free of duty bagging must be made into sacks.

these lines of goods is almost prohibitive, and is completely
r grades. In all that makes good leather that of the United
are most favorably with European, and the prices are evi-
many grades or we could not export leather to Europe; but,
this fact, I am informed that the bulk of the importations of
xico comes from Europe. If this is a fact, the reasons are
s enterprise on the part of European dealers. The duty
and all grades is $1.50 per kilogram, or 2.2046 pounds.

interest to show what 1 pound of prime American leather
xico, exclusive of freights and commissions. Good oak-
leather is now quoted at from 30 to 35 cents per pound.
cents per pound, a kilogram will cost 70½ cents in Ameri-
onverted to Mexican silver at the present rate of exchange of
.05 per kilogram. Adding the duty of $1.50, we will have
in Mexico of 1 pound of harness leather that originally cost
t any allowance for freights, commissions, etc. The best
n harness leather cost about $1.90 to $2. The finer grades
patent and morocco can stand such a heavy duty.

harness work are so heavily taxed by the tariff that the
s prospered and made notable progress. The native leather
f an inferior quality, and Americans and other foreigners
harnesses, and sometimes saddles, from the United States.
ess used by ranchmen and miners, known in the trade as
n harness," having a half chain at end of tug and common,
nes, will cost in the United States about $14 at retail and
t 14 pounds. This harness shipped to Mexico would be
ograms in weight and would pay $30 in Mexican money
ost but $14 in American money, or $21 in Mexican coin.
d wooden hames weigh 15 pounds, and, entered separately,
h lower rate of duty. A fine carriage harness will weigh
paying the same rate of duty, will cost much less, relatively,
n wagon harness. We may fairly assume that buyers of fine
are better able to pay high prices than the purchaser of the
. The result is that the cheaper harnesses of heavy weight
are almost exclusively produced in the country.

oes are very little imported. There are many tanneries in
perabundance of shoemakers making footwear to measure.
universally worn in Mexico by men, women, and children,
has a very high, sloping heel and long, pointed toe. If the
he importation of ready-made shoes, a special shape would
for this market.

rubber belting is imported almost wholly from the United
es imposed when separately imported and free when im-
ponent part of machinery.

Practically no rubber footwear is imported to Mexico. Rubber ponchos and mackintoshes come almost exclusively from Europe, because cheaper than in the United States. The trade in this line of rubber goods is sufficiently large to merit the attention of our rubber manufacturers. Patterns of rubber ponchos can easily be secured. Ponchos and rubber coats for the Mexican trade should have three essential points—cheapness, light weight, and a certainty not to stick when rolled up for any time in hot weather.

WINES AND LIQUORS.

With the exception of whisky and some alcohol, no spirits are imported from the United States. The demand for whisky seems to keep a close relation to American immigration to Mexico, as but little is used by the Mexican people. Mescal and tequila, the native strong drinks, are preferred. Whisky should be imported in barrels and with benefit of drawback from the United States internal revenue. In barrels the duty is 30 cents per kilogram gross weight, and in bottles 50 cents per kilogram net weight.

Beer is chiefly from the United States, although German bottled beer in cases has a fair sale. Previous to the new tariff of November, 1891, there was a decided advantage to ship beer in kegs, as it paid half the duty on bottled beer, estimated upon net weight; but this duty is now imposed upon gross weight and is prohibitory on account of the great weight of kegs. The rapid expansion of the brewing industry in Mexico must seriously affect beer importations from the United States. These breweries are American enterprises.

It is strange that California brandies have not been more largely introduced in Mexico, as they are of fine quality and claimed to be very pure. Considering the very large quantities of poor French cognac imported, it would seem that California brands, once known, would be favorably received and a large and lucrative trade result.

Pure wines are sure of a large sale. As the complaints of adulteration of European wines are numerous and growing, California wines are sure to secure a high reputation and large sales if properly introduced and advertised. Still wines should be imported in barrels, as the duty is about half that of bottled wines. At present the chief drawback to an extended sale of California wines and brandies in Mexico is the cheaper sea freights from Europe. From Bordeaux to the city of Mexico freight is 50*s.* per ton, while from San Francisco to Eagle Pass, on the frontier, the rate is 1 cent per pound in carload lots and 3 cents on smaller shipments.

MACHINERY.

Machinery of all kinds moved by steam, electricity, water, or animal power is free of all customs duties. Detached portions of machinery for repairs or additions are also free, even if imported separately, when it is evident such portions can not be applied to other uses. Also supplies, such as belting, packing, tools, lubricants, etc., can be imported free when accompanying machinery and in quantities not to exceed what is indispensable to he machinery for an experimental trial. Larger amounts , lubricants, etc., or when separately imported, must pay

ral implements, such as plows, harrows, rollers, mowers, re free of duty and are exclusively from the United States. abor-saving machinery for industrial, agricultural, mining, moved by hand or foot power, by means of cranks, levers, ., are not included in the free list, but are subject to a duty r pound gross weight. In other words, such implements rkmen's tools.

ines are in almost general use. In fact, no other labor- as received so universal adoption. Sewing machines are e commonly in the poor man's hut than in the rich man's an adobe or thatch house having a dirt floor, no windows, a door, and you will find a sewing machine. There is hardly portance but has one or more agencies of American sewing e agents sell machines on the installment plan, and thus can buy. Agents of long experience assure me that losses he installment plan are rare, as the people are honest. The as of American machines have not found favor in Mexico, y cheap. Our American sewing-machine agencies so thor- e field and are so enterprising that nothing can be added. l implements the people need education. Many a poor and ineffectually turns over his rich soil with a crooked h a bit of iron, because he knows nothing of the American true of all agricultural implements, from the simplest tools hines. The field is very large and practically virgin and foreign competition. The advantages of using our many es for improved cultivation and labor saving must be dem- patient, conservative people. In towns that are centers ural areas our American firms should establish depots of ag- ents and practically demonstrate all the manifold advantages The more expensive implements may be well sold upon in- sewing machines, the first payment to cover freights, duty n no other branch of trade with Mexico are larger induce- American enterprise than in the introduction of farm im- chinery, and no field has been more neglected.

uts, and rivets are chiefly from the United States, but with importation. Chains and files come from England and e cheaper. Sugar machinery and hoisting apparatus are States.

MUSICAL INSTRUMENTS.

very fond of music, and musical instruments, principally everywhere. Pianos, organs, guitars, mandolins, and banjos ported from the United States, and also from Europe.

It is difficult to compare the pianos of European and American make. European pianos, as a rule, are lighter, cheaper in first cost, and, with the duty of 50 cents per kilogram, are much cheaper than the heavier American pianos. In price, European pianos average 25 per cent cheaper than American pianos, but a dealer of large experience assures me that the American pianos hold their tone and withstand climatic influences so vastly better than those from Europe that the American piano is far the cheapest in the long run. Pianos, of course, are to be considered as luxuries for the rich; but many persons wish pianos for their families who are unable to make a total cash purchase, and it is believed the same plan adopted by sewing-machine agents would add largely to sales. Ownership remains with the seller, and the buyer at first payment reimburses the seller for outlay for freights and duty, which is often a matter of $200. It will readily be seen how little risk the seller incurs. A very inferior, cheap piano comes from Germany, but it loses tone rapidly and deteriorates.

Good guitars come from the United States, cheap and poor ones from Germany.

The demand for band instruments is limited. Mexican military bands are supplied with French instruments. Contracts to supply the Mexican army might be secured.

Few churches in Mexico have good organs. As most churches are too poor to stand the expense, large firms able to make arrangements for time payments might sell a number of church organs.

It will require judicious advertising and traveling over the country with samples of small instruments before a market can be established for American musical instruments.

PAINTS AND OILS.

The duty on oils, paints, varnishes, and painters' utensils and supplies has been considerably reduced.

Paints should be shipped ready mixed and packed as light as possible, as duty is upon gross weight. Oils for mixing paints pay double the duty imposed upon mixed paints.

Painters' brushes pay now 2½ cents per pound, and only best grades should be shipped. Importations for all the northern portions of Mexico are exclusively drawn from the United States.

Importations of illuminating oils are confined to crude and refined petroleum from the United States. Two American companies have established refineries in Mexico and have a virtual control of the trade. They import crude oils from the United States in tank cars, and have agencies in all the principal cities of Mexico. The high duty upon refined coal oils, gasoline, etc., makes direct importations too costly. These companies also produce lubricating oils. It will be seen that the field is now well covered by American companies.

Fish oils are imported to a limited extent for use in miners' lamps, and comes from the United States. The duty was formerly about $2 per gallon, but has now been reduced to 40 cents per gallon.

GLASS AND GLASSWARE.

so far been mostly imported from Europe on account of
ight rates. Until recently the reputation of European
n favorable to larger importations than from the United
all changed now, and our plate-glass manufacturers have
pean prices and secure as low rates of freight to entirely
n Mexico, providing always they work to secure it. The
r pound gross weight on plates of 39 inches in length or
7½ cents per pound for larger sizes. As no allowance is
and as duty is levied upon gross weight, it is evident that
as light as is consistent with safety.

of an inferior quality is made in Mexico, but American
widely imported. Glass in houses is almost a luxury.
Iexico are without a single pane of glass. The duty is
te glass.

ind glass for druggists' use there are no manufactories in
y of 20 cents per kilogram gross weight makes glassware
xpensive. Preference is given to lighter weights. This
ntly, entirely from Europe; but now some orders are placed
es, because some enterprising American firms have sent
tributed catalogues well made up and only lacking full
to be complete. This line affords a good field and should

a, and porcelain are now mostly imported from Europe.
nts per kilogram gross weight applies to plain and deco-
he consumption is large, our manufacturers should pay
this line.

ings are exclusively from the United States, on account
vements being American.

of metal pay duty upon the metal with which they are
l glass lamps pay on china and glass.

r, wine, ginger ale, and soda water are in large demand.
products, and supplies are wholly drawn from imports.
es will be removed May 1, 1892, and should largely in-
s, and this possibility should receive attention.

now be shipped in cases without paying duty upon the

lants are now well established in most towns of any size,
for manufacturers of electroliers and other appliances for
o send their illustrated catalogues to the local companies
lers.

PAPER AND STATIONERY.

force since November, 1891, has reduced the duty upon
kinds and largely increased the duty upon paper with
—6.

printed or engraved headings and upon blank books. As the prices of American papers have been greatly reduced, there is now a chance, for the first time, for American paper to enter this market, entirely controlled by European importations at present. The duty is upon weight, exclusive of packing; and hence for the Mexican trade paper should combine lightness with strength and smooth surface. Paper admitting of writing upon both sides is preferred. As there is a difference of duty of nearly 2½ cents per pound in favor of unruled writing, bill, and note paper as against ruled, the former will generally be preferred. Water lines are not considered as constituting ruled paper.

The high rates of interior postage cause light-weight writing paper to be in vogue. Envelopes should also be light and strong and colored (generally blue tinted) to prevent writing from being read through the thin envelope. A kind of paper very much used in Mexico is the so-called "papel ministro," used for all official documents and correspondence. In dimensions it corresponds to our foolscap, but size may vary slightly, as dimensions are not fixed by law. This paper should be of medium weight, unruled, and finished to admit of writing on both sides of sheet. Large envelopes to contain this paper when folded once will be in demand. It is believed our paper mills could supply satisfactory grades of this official paper, of which the consumption is very great. Samples can easily be procured from the departments, or any United States consul can mail samples.

A paper mill is in process of construction near Mexico city. The question will be what grade of paper it will manufacture. If suitable for printing purposes, the importations will be considerably reduced, as hitherto only wrapping paper of poor quality has been made in Mexico.

The paper manufacturer in the United States will do well to make inquiries as to sizes mostly used for newspapers. Newspapers are smaller in Mexico than in the United States. The largest may be 16 by 24 inches and the average size about 12 by 16 inches and even less.

Cardboard should have an increased demand, since the new tariff taxes visiting cards heavily, and they will be printed and engraved in the country.

Paper bags with cuts, name of merchant, or other advertising matter can not be imported and pay the duty on the paper alone.

Wrapping paper of straw and striped colored paper are in good demand, the latter especially. It should be as light as is consistent with strength.

Hitherto the excessive duties have limited the use of wall papers to the wealthy. The new duties of about 5, 10, and 25 cents, according to grade, should increase the demand. Cheap wall papers in bright colors and flowered designs are preferred and will find a good sale.

Pasteboard and colored paper, marbleized paper, and imitation leather for bookbinding will have ready sales.

It is impossible to state rules or make suggestions covering all cases, but, bearing in mind that paper in its many manufactures pays duty by weight, the chief requirement for Mexican trade is strength united to highest degree ble. Another point is to adapt size to the use paper is for ined cases, thereby avoiding paying duties upon an excess questions of the buyer as to sizes and grades he can best e desired results.

JEWELERS' WARES.

ropean watches are chiefly imported, because cheaper, s are steadily gaining in favor, because their superior quality wn. There are many more American watches in Mexico importations will show, because the tariff permits a person watches free if worn upon the person, and there is much nd fro over the frontier between the United States and gold watches and those having filled cases are classed to- tariff. The duty is not excessive, and will average about ost. Complete watches pay by piece or number, and the $1 to $14 each. As a rule, very large watches are not in ases are preferred. American watches have been but little), and the field may well receive more attention.

erican make are now most commonly used, at least in the the Republic. Alarm clocks are favorites. Trade in elab- ental clocks of high price is limited, but a large trade in rs is possible. Metallic cases and keyless clocks will best The duty is about 38 cents per pound net.

ions are principally from Europe. German toys especially owns where a German is established. Some special novel- ited States take well, but the field is limited.

re is little used. Silver-plated ware is now imported from s. Our standard and best-known grades are gradually and place alongside of the best grades of European plated deserves more attention than has been given it by our sil- duty is about 75 cents per pound, and is not excessive.

present almost exclusively from Europe, either solid or Some American manufacturers of rolled and filled jewelry, chains, are introducing their goods with success. The such pieces pay the same duty as solid gold, and the duty n case of watch chains, it is suggested that the links be ead of solid, and thus a saving of one-third the weight can ut sacrificing strength.

lers are doing fine work in gold, silver, and filagree. They that it will be hard to compete with them when most of work.

WEARING APPAREL.

clothing is heavily taxed, and, as a rule, finds but little the free zone. To the ordinary Mexican, even of the dy-made clothing suggests the ill-fitting garments manufactured in Germany. These garments are rotund at the waist and deficient in length, and generally illy adapted to the trim, lithe Mexican figure. The tasteful and well-shaped ready-made garments now made so cheaply in the United States could have a very great sale if the tariff was less burdensome. Under the present tariff no trade can be built up.

Underwear of better grades comes almost exclusively from Europe; common grades are made in Mexico.

Neckties are largely made up in Mexico city from piece goods of European importation; the balance of the supply comes from Europe, because it is cheaper.

American all-wool hats are growing in demand and are superior to European hats of equal grade and fully as cheap. American straw hats are rapidly growing in favor, as evidenced by the increased demand. Caps are but little worn.

Lace shawls, or mantillas, which formerly constituted the sole head gear of Mexican ladies, are slowly yielding to the superior attractions of the bonnet and hat, and Paris modes form the taste and rule the trade.

Gloves are seldom worn, save on formal occasions. They come from Europe, where they are cheaper than in the United States.

Hosiery of all kinds, from cotton to silk, is brought from Europe, where it is so cheap that the comparatively small demand would hardly make competition profitable.

Machine-made embroideries and trimmings are also from Europe, especially from Switzerland and Saxony, and are so cheap as to preclude rivalry.

EUGENE O. FECHET,
Consul.

UNITED STATES CONSULATE,
Piedras Negras, October 9, 1892.

CHOLERA IN RUSSIA.

REPORT BY CONSUL-GENERAL CRAWFORD, OF ST. PETERSBURG.

The introduction of cholera into Russia became at once a question of international interest and concern. I have therefore watched with great care the progress of the epidemic since its entrance into the Empire at Samarcand, whence it came rapidly to Bakoo, Tiflis, Astrakhan, and thence up the Volga into the interior. I have carefully noted the measures adopted by the Russian Government in the several places of importance visited by the epidemic to combat the disease and reduce its ravages if possible to the minimum. I have studied the work of the sanitary officials, as well as that of the medical corps of the Empire, and I believe it to be my duty to make a report to the Department upon the measures taken against the epidemic in Russia, especially as cholera is threatening to invade the United States.

GOVERNMENT MEASURES AGAINST CHOLERA.

eved by the medical authorities that an effective quarantine
established at Astrakhan, on the Caspian Sea, sufficiently
, to have prevented the epidemic from going up the Volga
g the interior of the Empire.
ıty of the good results of quarantine at this point, coupled
: the local authorities were not well prepared for such a
ed in leaving the doors of this important city open to the
r. As soon, however, as cholera broke out in Bakoo the
t barracks at Astrakhan for its treatment, appointed a sani-
detailed officers to keep watch day and night for choleraic
came personally responsible for the transport of all such
cks. It was the plan of the Government to enforce a rigid
n against the spread of the epidemic; this plan soon proved
le and, in fact, impossible, due, it is claimed, to the influ-
es, who were unwilling to assist the authorities.
gradually spread inland through the towns of the Volga
ched Nizhnee-Novgorod before the authorities were able in
ree to check its ravages.. Here his excellency Baranoff,
province, took the matter rigidly in hand and acted as a
tters touching the epidemic. Governor Baranoff decreed
rguing that the disease was not an epidemic of Asiatic
ersons in any way opposing the orders of the sanitary com-
e doctors should be immediately arrested and imprisoned.
severe punishment to all persons found guilty of spreading
ggerating reports of the disease. He organized a very sys-
disinfection, the first and foremost of which was the abso-
the city. Public streets, sewers, public buildings, as well
ises in the city, were under the strictest surveillance, thor-
nd disinfected with either carbolic acid, bichloride of mer-
ate, dry heat, steam, or boiling water. Under the sani-
rnor Baranoff a rigid inspection of all classes of food stuffs,
nd milk, was strictly enforced. Articles of food believed
able to carry infection, such as mushrooms, berries, caviar,
a cabbage, fish not freshly killed, all fruit and vegetables
sh and clean, were gathered up by the authorities and sum-
.
to choleraic patients, a rigid system was enforced to pre-
All the clothes of such patients were immediately burned
en them by the local authorities. The bodies of the dead
y buried unwashed and without funeral rites, an especial
aving been devoted to such service. Every house in which
ve been taken ill from cholera was thoroughly disinfected,
or dry heat being used wherever practicable; this in ad-
eral disinfection of all the houses in the city.

I may add here that, based upon observation, experience, and practical tests in the present epidemic, the medical authorities of the highest standing in Russia now affirm that disinfection, as generally understood and practiced, is of little or no practical value, excepting such disinfection as properly comes in the domain of thorough cleanliness. These medical authorities declare that the system of trying to kill the bacteria of cholera by any form of chemical disinfection is of little or no avail. It may be interesting to note that the experts in cholera in Russia look upon the number of flies in a house or locality as indicating the amount of danger from uncleanliness in an epidemic of cholera. Flies have been found to be infected with choleraic bacteria, and therefore are believed to be prominent agents in the spread of the disease. It is the opinion of the medical experts who have studied cholera in Russia that boiled drinks and thoroughly cooked foods are a safeguard against cholera. Thorough cleanliness, thoroughly boiled drinks, and thoroughly cooked food stuffs may be regarded as the present motto of the sanitary and medical commission of Russia.

In addition to the preventive methods enforced by Governor Baranoff against cholera, as mentioned above, a very systematic plan was organized on all the steam and canal boats, railway trains, and trams to prevent as much as possible the spread of the epidemic. All trains were ordered to carry boiling water, as well as boiled drinking water, for the use of the passengers. Upholstered cars were covered with oilcloth and often with linen slips, which were removed at the end of each trip, washed, and reboiled. The closets and washrooms of each car were thoroughly cleaned by boiling water for every trip and disinfected with carbolic acid. A cholera car, thoroughly equipped for the emergency and attended by a physician, was attached to each train. Similar precautions were taken on steam and canal boats and on tram cars.

The results of the rigid practice organized and carried out in Nizhnee-Novgorod by Governor Baranoff proved to be eminently successful. Therefore, a similar line of sanitation was adopted in Moscow, and with excellent results. Since I have been in Russia I have often heard it remarked that Moscow is an unclean city; but the small number of deaths from cholera in the present epidemic would seem to argue to the contrary. I had occasion to visit Moscow on the outbreak of the cholera there, and I particularly noticed a very great improvement in this particular since my former visits to that place. The entire city was clean and, as the prefect of Moscow personally assured me, was in excellent condition to combat the epidemic. It is a matter of common surprise that cholera did not assume a seriously epidemic form in that city, due, it is believed, entirely to the rigid precautions taken with reference to cleanliness, food, and drink.

In St. Petersburg a similar line of precautions was promptly undertaken and carried out. Gen. von Wahl, the prefect of the city, was as untiring as he was thorough in preparing the city in advance of the outbreak of the epidemic, and I may add that long before the first case appeared in the

'as in readiness for the enemy. The much-loved mush-
ıge, caviar, berries, and poor fruit were mercilessly dealt
h watch was set over the market places, fish stands, fruit
es, meat and milk shops, and everything not absolutely
in the way of food stuffs was confiscated and summarily
ks, it is believed, to the faithful carrying out of both the
it of the orders of Gen. von Wahl, the present epidemic
a mild form in St. Petersburg.

REATMENT BY THE RUSSIAN PHYSICIANS.

ally visited the cholera hospital of this city, and I have
ed with the arrangements for the comfort and treatment
All of the appliances and instruments are of approved
the hospital conveniences, as well as the care of the sick,
favorably with those of the United States.

e cholera hospitals in St. Petersburg is under the super-
rs of the Society of the Red Cross. There are two classes
ants: one class composed of men nurses, whose duty it is
more laborious work of the hospitals; the other class is
of women, who attend to the more delicate services and
to keep the hospital in perfect order, besides serving as
ale nurses. There are male nurses in charge of the bath-
e the patients, bathe and dress them, and place them in
of the different wards. The nursing, I am able to say
ervation, is excellent.

reatment of cholera in Russia in general is essentially the
iced in St. Petersburg. The basic idea of this treatment
s possible that organ or function which is most seriously
sease. The especial features of this treatment consist in
njection of salt water, following the method of the Italian
. Another measure is the introduction of a solution of
rly diluted, into the bowels direct. In order to make this
asily understood by the general reader, I will follow an
the cholera hospital and describe the treatment as prac-
s patient is taken sick with cholera, not as suddenly as
l, and, after much persuasion by his friends and relatives,
ed to the authorities. In this city there are police cholera
f which there are special police physicians, whose duty it
y case brought to their notice. The patient thus reported
ion is sent directly to one of the cholera hospitals—gen-
own will and often, indeed, too late for effective treatment.
cian remains behind and superintends the disinfection of
the patient according to prescribed methods. At the
nt is first taken to the bathroom of the ward to which he
ssed, and placed in a bath tub of water somewhat warmer

than the temperature of the body, where he is kept immersed for a period of ten to fifteen minutes, after which he is dressed with clean linen shirt and drawers and put to bed. On his way to his bed he is temporarily wrapped in woolen blankets. He is then examined by the ward physician, who carefully takes his history and makes notes of his condition, something as follows: John Jones; age, 40; married, wife and children; garden laborer; residence, No. 16 Peski, St. Petersburg; sick three days before coming to hospital from diarrhea, pain in back, headache, loss of appetite, slight nausea; skin warm; temperature, 1° below normal; pulse, weak. The following will probably be the treatment: Salol, 1 gram at a dose every three hours, with subcutaneous injection of solution of salt. The diet will be boiled milk, bread, and tea. It should be stated here that everybody drinks tea in Russia; it is, in fact, the national drink. The salt water used in this injection will be about 1 liter of a one-half of 1 per cent solution. This solution is prepared by the druggists as follows: Distilled water, sterilized by heat, with salt enough added to make a solution approximating as near as possible the plasma of the blood. This solution is kept in bottles such as are used in laboratories and stoppered with sterilized cotton. When the solution is to be used, its temperature is raised to blood heat by immersing the bottle containing it in hot water. A large glass-barreled syringe with a needle of about 5 inches long is used in making the subcutaneous injection. The site of the puncture of the hypodermic needle is generally in the abdominal wall to the right and left of the umbilicus, one-half of the quantity being injected into either side. In the course of from six to ten hours the salt water is completely absorbed, as shown by the subsidence of the swelling. Not infrequently the injection produces considerable inflammation and, rarely, putrescence, due to some unavoidable imperfection in the operation. The value of this method is in doubt even at the hospitals here; but it is believed to afford temporary relief at least to the patient, and apparently improves the circulation and probably influences favorably the diarrhea and vomiting. This so-called method is under rigid trial in this city, and I should not be surprised to find it finally discarded. The same may be said of the internal use of salol in these cases, a chemical product of considerable reputation and merit in other instances and harmless. This preparation is extensively used throughout Russia, perhaps in a large measure due to the fact that its chemical origin is St. Petersburg, whence it has traveled around the world. The diet, as mentioned above—namely, milk, bread, and tea—has proved to be entirely satisfactory.

At the next visit of the physician some hours later the patient will probably be worse, and further evidence of blood poisoning be manifest through convulsions and vomitings, with skin cold, kidneys inactive, and with septicæmia if the case is grave. The treatment is now changed, and subcutaneous injections of diuretin are made with the hope of forcing, if possible, the kidneys to act; bismuth and opium to relieve the vomiting and a hot-air bath to bring up the temperature of the surface of the body are also used.

s thus used is also undergoing a thorough test here, and I rprised at seeing its efficacy in these cases seriously questioned. d opium treatment is too well known in the United States to mentioning here. I would like to add, however, my personal ie great efficacy of the hot-air bath, especially in cases in I have seen this used in the hospitals here in cholera cases, with prompt and permanently good results. A very simple e easily constructed in any household for the application of cases. A frame may be placed on the rails of the bed, on pread ordinary blankets well tucked in at the sides and around Jnderneath the blankets on one side of the bed may be in- of the elbow of a small stovepipe, while the other end is chimney of an ordinary kerosene lamp to receive the heat of sending a current of hot air under the blankets of the patient. neter is thrust through the blankets in contact with the pa- emperature is thus regulated. This method of combating of the disease is now in general use here and grows in favor cation. Many patients are believed to have been saved by lone. I personally recall one case which I regarded hope- was immediately improved by the hot-air bath, and who d.

visit of the physician our patient will apparently be some- pulse stronger, body warmer, but with rice-water diarrhea and d frequent. The treatment now will probably be an injection of about 1 liter of a solution of tannic acid of the proper will probably be the last prescription, as the patient with scribed above will probably soon pass into the comatose state, r medical aid will be of no value. This use of tannic acid is rse, well known to the average physician, and has been given n the supposition that the media of the germs of cholera are ction, the injection being thus intended to counteract the n. Another reason for using tannic acid is its well-known ties. Both of these theories are being seriously questioned by gation in cholera cases.

other treatment is given, as the symptoms of the several Beta-napthol mixed with bismuth is sometimes given instead diarrhea stage, and sometimes other antiseptics; cocaine is considerable success, apparently to relieve vomiting, and in 3 drops of a 10 per cent solution. In cases coming early to en not violently ill, a dose of 30 grams of castor-oil is given. ections of morphine are used to assuage the cramps and colic tients are also given, as far as practicable, hot-water baths cases a liter of salt solution has been injected directly into patient at the ankle, but the method is now regarded as both neffective.

The essential features of the treatment of cholera as practiced in Russia in the present epidemic may be summarized as follows: (1) Hot-water and hot-air baths; (2) subcutaneous injections into the abdominal wall of 1 liter of a one-half of 1 per cent solution of common salt; (3) injection into the lower bowel of tannic acid and opium; (4) hypodermic injection of diuretin for inactive kidneys; (5) internal administration of salol, bismuth, beta-napthol, opium, cocaine, and castor oil, as respectively indicated; (6) hypodermic injections of morphine.

GOVERNMENT INVESTIGATIONS.

I take great pleasure and pride in calling attention to the fact that a young physician of the United States, because of his eminently successful career in the Oldenburg Institute of Experimental Medicine, in this city, was selected by the Russian Government to go to Bakoo, erect a laboratory there, and conduct a series of scientific experiments relative to the cause of cholera, and more especially to its locus in the human body. The name of the physician above referred to is Arthur G. Blackstein, of New York city, a graduate of Cornell University, where he received the degree of B. A. in 1882, whence he went to Leipsic and received the degree of M. D. from the medical university of that place in 1887. Returning to the United States, he was made a fellow in pathology of the Johns Hopkins University in 1890–'91. One year ago he came to the Oldenburg Institute of Experimental Medicine, in this city, where he has devoted his entire time to the study of disease-producing bacilla and kindred studies. On the breaking out of the epidemic in Russia, Dr. Blackstein was thought to be the best equipped for conducting a series of scientific investigations on cholera. He was therefore, by special recommendation, made an active member of the Institute of Experimental Medicine of St. Petersburg, and was immediately intrusted with the important mission above mentioned.

According to Dr. Blackstein, there have been and are still two very different methods of pursuing the scientific study of cholera, one of which has been termed epidemiological method. The collecting of statistics and observations as to the influence of soil, air, water, and plant upon the course of the epidemic belong to this method. In this way much valuable information has been collected by Pettenkofer. The second method is known as the bacteriological method, and was successfully inaugurated by Koch. The discovery of a specific germ was a great step in advance in the scientific study of cholera. The majority of observers agree that the so-called comma bacillus is to be found only in the excretions of cholera patients, and that in typical cases it is always to be found there. At the cholera laboratory in Bakoo Dr. Blackstein examined a large number of cholera patients with reference to this question, and he has assured me personally that his observations have convinced him of the correctness of this view.

The great German Pettenkofer claims that a certain condition of the soil, as yet unknown, is a necessity for the development of cholera. At any rate, he claims that the biological properties of the comma bacillus are in-

mselves to account for the origin of the cholera epidemic.
genious and masterly work is valuable and important—a
vould seem superfluous did I not think that it is being
American workers in this line of research.

e other hand, claims that an infection of comma bacillus,
ltures are pure, will produce cholera, regardless of meteoro-
is. It is interesting to note that in Dr. Blackstein's investi-
o he concludes that Koch's work is correct, but that his
Dr. Blackstein argues that Koch's logical inference should
mma bacillus, therefore, plays a part in the cause of Asiatic
lackstein would ask the question, what part do Koch's bac-
causation of cholera? and at the same time would state in
what the aspect of the scientific study of Asiatic cholera is
y. He says that if workers in this line of study, especially
d and India, would unite in the solution of this problem,
ore good than in persisting in an effort to belittle the value
discovery.

in admits that the Russian Government has made great
the progress of the epidemic, and in this has been generally
ially in the larger cities. But in those towns in which the
rently waited for the decision of the bacteriologist before
existence of Asiatic cholera in their midst much harm was
done. He claims, what every skillful physician must admit,
is of Asiatic cholera can be unerringly made without the aid
e, and should be made without it in the actual treatment of

in concludes that the phrase "killing bacteria" can only
terest to those people whose business it is to disinfect places
he idea, he claims, which the physician who deals with
should be impressed with should be that the bacteria can
ss. He is fully convinced, as a result of his own experi-
es in the Government laboratory at Bakoo, that the direct
in cholera is the intestinal canal. A disinfection of this
rse, impossible; but, fortunately, it is unnecessary, as the
on possesses means to reduce what is known as intestinal
minimum.

important conclusion of the Bakoo investigations is that,
ract Asiatic cholera, one must, so to speak, either eat it or
s to say, the cholera poison, be it the comma bacillus or
be taken into the stomach in its active state in food or in
ore important result of those investigations is that cooking
oiling the drink render the cholera poison innocuous. If
s are sound, we have a certain safeguard against an epidemic
. Blackstein approves of the use of salol, bismuth, and beta-
cludes from his observations that the tannic-acid injections

into the bowels, as well as hypodermic and introvenous injections, do harm without doing any good. He favors a thorough irrigation of the gastro-intestinal canal, and affirms that if the physician would treat the choleraic intestine with the same delicacy with which a surgeon treats a wound he would meet with greater success.

It would be beyond the aim of this report to go into the details of the work of the Bakoo cholera laboratory, especially as Dr. Blackstein assures me that he will make an elaborate exposé of that work for the medical world in due course. I have therefore only intended to give a general summary of the conclusions reached in the Bakoo investigations. I simply wish the public at home to know that, if proper care is taken with their food and drink, there need be but little apprehension over cholera in their midst.

TREATMENT OF CHOLERA BY IRRIGATION.

The method of treating cholera patients by irrigation of the intestinal canal was introduced at the Obuchoff Hospital, in this city, September 3, 1892, by Elmer Lee, who came here properly fortified with testimonials for the express purpose of obtaining permission to treat a number of cholera patients by this method. By way of introduction, I may say that Dr. Lee is resident physician of the Palmer House, Chicago. He is a fellow of the American Academy of Medicine, member of the American Medical Association, and was a member of the committee of revision of the United States Pharmacopœia in 1890. On arriving at St. Petersburg he was at once put in communication with the medical corps of the cholera hospital, to whom he stated the object of his visit and explained in detail his methods of cholera treatment. He gave the results of his experience in Chicago in the treatment of enterocœlitis by the irrigation method. As cholera is also an enterocœlitis, and as the method proposed by him seemed reasonable, physiological, and harmless, it was decided by the hospital corps to give Dr. Lee a fair trial. He was accordingly given one case, which was admitted to be grave. This case was promptly treated, but with imperfect apparatus, and on the second or third day was convalescent. He was then given two other cases, and they recovered. He was then given four, and sooner or later he had treated in all twenty-seven cases personally, twenty-four of which recovered, showing a mortality of only 12 per cent. I have personally visited these patients at the Obuchoff Hospital and have made clinical notes in reference to them; I have talked with several physicians of the hospital staff and have received from them only words of the highest praise over the results obtained. Before giving an explanation of this method, I will give a brief clinical report of the twenty-seven patients treated by Dr. Lee as I saw them, purposely abbreviating the same by the omission of names and other uninteresting data. Of course, it is understood that the cholera patients treated in public hospitals belong almost invariably to poor classes. It has been estimated that only about one-third of all cholera cases are taken to the public hospitals in this city.

ɔff Hospital, St. Petersburg, September 3, 1892. Patient nan; had already been treated by the usual remedies, but did ; intellect dull, pulse weak, skin cold and blue, diarrhea pro- prominent symptom. This patient was treated in the pres- ysicians of the cholera hospital and, because of his extreme ation was performed in bed. Five liters of strong Castile-soap nto the colon through a flexible rubber tube 26 inches long; continued until the outflow was clean. The patient promptly similar treatment was given the next day, which was followed ce, and in about a week thereafter he was discharged cured.

new arrival; middle age; severe cholera poisoning; skin cold ulse feeble, kidneys inactive. This patient promptly recovered.

6 years old; admitted September 6; skin cyanotic, pulse on short and heavy, much diarrhea and vomiting. The case be grave. The injecting tube, which is flexible, was care- entire length of the transverse colon and 2½ gallons of strong ls were injected. The boy was then bathed and placed in bed. ing day his symptoms had so much improved that it was ssary to give him further treatment. Prompt recovery.

new arrival; in comatose state when admitted. Although tient died the same day. Post-mortem revealed only the cholera septicæmia.

middle age, large and strong; had been sick two days before diarrhea and vomiting, skin warm, pulse moderate; irri- ompt recovery.

medium size, greatly emaciated and pale; had been sick fore arrival; rice-water diarrhea and vomiting; pulse ex- The patient was irrigated twice the first day and twice the Ie recovered.

one day sick; diarrhea, vomiting, and convulsions, with ere colic pains; pulse weak, intellect dull, skin blue. After ion the abdominal pains were relieved. There was similar econd day, followed by recovery.

man; skin very blue, surface cold, labored breathing, pulse ɔfuse diarrhea, and vomiting. He was irrigated once the first he second. There was prompt recovery.

n; very sick; two treatments; recovery.

e-aged, black-haired peasant; exhausted by several days' ɔmiting; abdomen collapsed; cyanotic; unconscious; pulse ble; two irrigations, followed by recovery.

middle-aged, gray hair; skin very cold, anxious expression, llect, very severe diarrhea, but little vomiting, skin very blue; the first day; died the next. Only the usual evidences of ing were revealed in the post-mortem, at which I was per-

(12) Man with small features, about forty years old; had been sic days before arrival; skin warm, pulse good, diarrhea and vomitin colic pains. There were two irrigation treatments, followed by recov

(13) Patient a cook; short, heavy-set blonde; had been sick three very severe diarrhea, but little vomiting, mind dull, seldom spoke, d to arouse, skin blue and cold, abdomen collapsed; irrigation. The died that night. The post-mortem revealed only the usual evide cholera.

(14) Young man, acute case; one day sick; diarrhea and vo with cramps; one irrigation; recovery.

(15) Old man; excessive vomiting, great prostration, pulse wea cold and blue, labored breathing. After the first irrigation the abd pain was relieved. He recovered.

(16) Case complicated with chronic gastroenteritis of severe cha vomiting and purging. The patient recovered.

(17) Young man; had been sick several days; frequent diarrh vomiting. In this case Dr. Lee was unable to introduce the injectio into the colon, but performed thorough rectal irrigation with good The patient recovered.

(18) Young man, yellow haired; sick one day before arrival; skin pulse good; great abdominal pains and diarrhea. There were two irri the first day and two the second. The patient recovered.

(19) Old man; had been some time sick in hospital and would n valesce. Irrigation removed a large quantity of green, flaky coating the bowels, followed by relief and recovery.

(20) Patient sick one day; cyanotic, skin cold and clammy, lip pulse feeble, temperature subnormal; intellect dull; algid state; re

(21) Patient a young man; temperature subnormal, pulse feebl and hands cold, skin blue, tongue as usual heavily coated, diarrhea, ing, and abdominal pains. The patient was irrigated morning and e of the first day and recovered.

(22) Young man taken suddenly ill on the street, brought direct hospital; profuse diarrhea and vomiting, blue lips, pale, coated t There was one irrigation the first day and one the second, followed covery.

(23) Old man; severe pain, excessive diarrhea, greatly emaciate weak pulse, skin blue in spots; had been sick two days before arrival; dull, respiration frequent and labored. There were two irrigations t day, followed by recovery.

(24) Boy; had been sick one day; skin blue and cold, abdome lapsed, violent diarrhea and vomiting, with convulsions. After one irri there was marked convalescence and quick recovery.

(25) Man, middle age; sick one day before arrival; pulse almost ceptible, lips dark blue, eyes dull and heavy, cheeks sunken, abdom lapsed, skin cold and clammy, severe diarrhea and much retching, i

se was grave and thought to be moribund. The patient was the first day and twice the second, followed by recovery.

g man, recent case; skin blue and cold, anxious expression, y weak, respiration labored, profuse diarrhea and vomiting, dominal pains. There was recovery after three irrigations, ay and one the second.

middle age, tall; face very red, hands blue, skin cold; had day; profuse diarrhea, but no vomiting, pulse weak, temper- He recovered after two irrigations.

I do not wish to intimate that the treatment of the twenty- cholera as detailed above is sufficient to establish the perma- ne irrigation method in this disease. I believe, however, that en done in this direction to demand the careful attention of ternity and to call for a thorough investigation of this treat- this spirit and with this motive that I make this report. In n, I would say that the physicians of the Obuchoff Hospital, rgest cholera hospital in this city, concluded, after seeing the wenty-seven cases above mentioned, that the irrigation method n a fair and impartial trial. The chief of the hospital corps ed Dr. Lee, as well as myself, that this method of treating be put on trial for six months, after which an official report to its value would be published. I would also add my per- y to the fact that I happened to call at the hospital a few days tion to put this method on trial and was pleased to see that were practicing the irrigation method. In fact, I saw a pa- s treatment during my visit. He was unconscious, collapsed, cold, and I said to the physician that, in my opinion, he could Two days later I received news from the hospital that this as convalescent.

refore, that I may be pardoned for urging in this report that method of treating cholera be given a fair trial should the epi- nately visit the United States.

THE IRRIGATION METHOD.

ent of cholera by irrigation is based upon the general belief— f has been intensified by the experiments of Dr. Blackstein, n this report—that cholera is the result of some form of poison, or otherwise, which acts on the tissues of the colon and sooner s the system. This treatment is accordingly very simple, and shing out the bowels, and as high up as possible, with some disinfecting liquid that is not harmful. The experiments of n have been confirmed by Dr. Blackstein in his special work o show that strong Castile-soap suds is one of the most effective purpose.

tus used consists of a plain rubber tube about 4 feet long and o three-fourths of an inch in diameter, or, speaking more technically, of the diameter of a No. 50 sound of the French scale. Thi can be secured at any medical supply store. It should be flexible, wit sufficient resistance to assist in passing the angle of the colon. In the ment at the hospital here the tube was passed entirely through the tra colon in nearly every instance. This tube should taper bluntly at th in the exact center of which should be an aperture equal in size to abo third of the caliber of the tube itself. A glass jar sufficient to contai 3 gallons and with a common faucet attachment at the bottom is pla a shelf about 6 or 7 feet above the floor. To the faucet is attached th rubber tube, as in the ordinary fountain syringe, the other end of w properly connected to the injecting tube above mentioned after it ha carefully passed into the colon. The patient, of course, is previous pared for this operation and placed in position on the irrigation table immediate vicinity of the apparatus. The glass jar is then filled with C soap suds sufficiently strong to show iridescence. The faucet is then t and the irrigation is begun and continued until the outflow consists o soapsuds. The patient is then taken from the irrigation table and pl a bath of the normal temperature of the body, after which he is p dressed and put to bed. A second irrigation, as practiced by Dr. L lows the first in the course of from six to twelve hours, according urgency of the case. It is claimed that the irrigation of the colon thu oughly performed produces sufficient stimulus and reaction to ca contents of the small intestine to pass freely into the colon, which a irrigation removes.

In addition to this treatment, Dr. Lee and the physicians of the hospital here favor the washing out of the stomach by the usual meth though this practice was not resorted to in the twenty-seven cases abo merated. One of the physicians of the hospital, however, has assu that stomach-washing will be added to irrigation of the colon in the h in cases sufficiently grave to suggest it. It may be noted that of all tients that I saw under treatment by this method not one offered the s objection thereto, but, on the contrary, seemed to think that someth being done for their relief.

Other preparations have been added to the soapsuds in this treatm the hospital, intended, if possible, to make the irrigation more eff but such modifications of the injecting fluid need not be discussed they will suggest themselves to the general physician, and especially a suds unmedicated produce equally satisfactory results. It will, of be understood that the soapsuds are made with distilled water or wa has been recently boiled.

The internal medication used by Dr. Lee is equally simple. H generally hydrogen dioxide (H_2O_2) which is nothing more than d water containing an extra atom of oxygen. This he gave every two o hours and in cupful doses. In addition to this, the patient was giv tilled water freely, either hot or cold, as he preferred, in which a littl solved. According to symptoms, however, other remedies h as will occur to the mind of the general practitioner, and t here enumerate.

nterest and weight to this report to say that since its preparain consulted one of the principal physicians of the hospital examining it in detail, assured me that it meets with his en-. The same physician desired me to say that the same treatsed in dysentery and in simple cases of colo-enteritis since ture with excellent results, and that the irrigation treatment l at the Obuchoff Hospital with marked success in cholera.

J. M. CRAWFORD,
Consul-General.

TES CONSULATE-GENERAL,
St. Petersburg, October 4, 1892.

CROP SHORTAGE IN FINLAND.

BY CONSUL-GENERAL CRAWFORD, OF ST. PETERSBURG.

officially informed that the peasants in the northern portion suffer greatly for food during the coming winter, because of olonged rains in the spring aided by heavy frosts in the ined the crops in the entire northern half of the country. ernment has already taken measures to aid as far as possible e.

the bread that they are already eating in the northern part been sent to me, and tells a story of hunger and poverty that of the peasants of the southeastern portion of Russia year. The local authorities in the grand duchy of Finland eral calamity awaits their people. This seems all the more we consider that these same people suffered greatly during and that they received no part whatever of the generous it to this Empire by the United States and other foreign relief of the hungry.

ipt of information from Uleaborg, situated at the north of nia, to the effect that an early frost has destroyed nearly the of agriculture in all of the northern districts, and that the orth are already stricken with alarm.

er of great doubt whether the Finnish government will be limited resources, to successfully cope with this distressing ing the comfort and life of nearly 1,000,000 of the Finnish

J. M. CRAWFORD,
Consul-General.

TES CONSULATE-GENERAL,
St. Petersburg, October 17, 1892.

—7.

MEXICAN TARIFF CHANGES.

REPORT BY SECRETARY OF LEGATION DOUGHERTY, OF MEXICO.

I hasten to transmit copy and translation of a decree just promulga this Government and published in to-day's issue of the Diario Oficial. decree relates to the Mexican customs tariff, and effects many imp changes therein. These changes consist of very material reductions certain items; the placing of one item, *i. e.*, waste and torn paper, p vegetable fibers, etc., used for manufacturing purposes, on the free list the removal from the free list and the imposition of a "light duty" about twenty items.

The decree discloses, as the reasons for these respective chang fact that some foreign merchandise is so heavily taxed in the tariff force that its importation has become almost null, the recent depre of silver and the needs of the federal exchequer urging that articles o consumption hitherto free should contribute their quota of revenue.

The decree takes effect on December 1, 1892, as far as concern chandise on which the import duties are therein reduced and on Jan 1893, as far as concerns other merchandise; "provided, in all cases, th are introduced by the frontier, or the vessels carrying the same to th of destination enter such port after the hour of midnight of the day ju ceding."

C. A. DOUGHERTY,
Secretary of Legati

UNITED STATES LEGATION,
Mexico, October 18, 1892.

DECREE AMENDING THE MEXICAN TARIFF.

[Inclosure in Secretary of Legation Dougherty's report.]

(1) It being absolutely necessary to confer upon the tariff of the general custo nance of the maritime and frontier custom-houses all the character of stability require nection with pursuits of commerce and industry, it is not prudent to alter the rates o duties only as experience itself may demonstrate fully the necessity for such modific

(2) That some foreign goods are so heavily taxed in the customs ordinance tarif force that their importation is almost null, on account of the weight of duty, as is e by reference to the statistical tables of imports drafted in the custom-house statement

(3) That the high rates of import duties produce the result that foreign merchand dened thereby, is smuggled in, to the serious detriment of the public revenues, manufactories, and commercial men of good faith.

(4) The depreciation recently affecting silver has also caused foreign exchang more than 50 per cent. This circumstance resting heavily on the value of foreign merc has rendered difficult the importation thereof and invested with a prohibitive chara high rates of the tariff on imports.

f articles of general consumption wherein the import duties represent a sum ter than the value itself of the effects, the principles of a sound political duction of such rates, in order to increase the consumption thereof, as well tself.

ing of articles similar to those manufactured in the country, and which certain consideration at the hands of the Government, there exists the same ction of duties whenever the protection afforded to a national industry im- fice on the part of consumers, and at the same time stultifies the spirit of essary to the continued improvement of national products in the line of ad- nd new discoveries.

fiscal reasons, it has been deemed requisite to reduce some of the rates n force, it has also been deemed advisable, in view of the heavy burdens deral exchequer, to require that some articles of large consumption in the ch have not, up to the present, paid any duty upon their introduction into contribute with a light duty, of a character merely fiscal, to the sustenance f the nation.

he tariff of the general ordinance of maritime and frontier custom-houses of nodified and expanded in the provisions hereinafter specified:

Table showing the tariff as modified.

Articles.	Unit.	Rate.
nares, and colts more than 1 year old	Per head	$15.00
ng pigs	Per kilogram	.02
d their young	do	.02
ep	Per head	1.00
utton, pork, and fowl	Per kilogram, net	.08
en when preserved in ice	Per kilogram, gross	.02
t meats	Per kilogram, legal	.12
, not specified	Per kilogram, gross	.08
	do	.10
Virginia	Per kilogram, net	.15
ato	do	.04
cotton seed	do	.10
d cotton seed	do	.05
	Per kilogram, legal	1.00
or octagonal bars, for mines	Per kilogram, gross	.01
ire, the diameter of which is not less than the num- ingham.	do	.05
ences and hooks for fixing the same	do	.01
tone hammers, dies, and shoes	do	.01
wshares	do	.01
ith rivets, for tying bundles and iron-wire clasps for rpose.	do	.01
	Per kilogram, net	.01
able wire of any thickness	Per kilogram, gross	.01
l tubings of any size, tinned or not	Per kilogram, net	.01
nplements of all kinds, such as picks, shovels, axes,	Per kilogram, gross	.01
	do	.01
in pigs, filings, or scraps	do	.01
und, square, half round, or flat)	do	.06
ed, sheets for sieves	do	.01
up to 55 centimeters in length by 40 in width, not painted.	do	.01
vire covered with cotton, linen, wool, silk, or paper	Per kilogram, legal	.12
goods made of tin, not specified	do	.25
goods of iron or steel, not specified, the weight of ch does not exceed 10 kilograms.	do	.15
r kitchen or for heating purposes	Per kilogram, gross	.05
of all kinds, with or without marble tops or mirrors	do	.25

Table showing the tariff as modified—Continued.

No.	Articles.	Unit.	Rate.
359	Common and hydraulic lime and Roman or Portland cement	Per 100 kilograms, gross.	$0.50
377	Plaster and stucco	Per kilogram, gross	.01
441	Panes of glass of all sizes	do	.10
442	Sheet glass for floors, whose thickness may not be less than 0.01 meters.	do	.05
458	Cotton stuffs, crude or unbleached, of plain textures, of not more than 30 threads of warp and woof in a square of 5 millimeters per side.	Per square meter	.07
459	Cotton stuffs, crude or unbleached, of plain texture, when they have more than 30 threads of warp and woof in a square of 5 millimeters per side.	do	.10
460	Cotton goods (painted, stamped, or dyed) of plain texture, when not more than 30 threads of warp and woof in a square of 5 millimeters per side.	do	.10
500	Linen and hemp thread, white, crude or colored, fine or common, in any thickness, in balls, reels, or skeins.	Per kilogram, legal	.12
501	Linen or hemp thread of all classes and colors, in spools	do	1.00
659	Sizing for woven stuffs	do	.05
733	Mineral, artificial, or natural waters	do	.02
742	Waste and torn paper and pulps of vegetable fibers, untinted, for manufacturing purposes, which may be perforated at distances of not less than 10 centimeters.		Free.
743	Paper without sizing or half sized, without satin finish, for the printing of books and periodicals.	Per kilogram, legal	.07
744	Paper without sizing or half sized (white satined) for the printing of books and periodicals; paper of tinted pulp for printing; paper to counterdraw or filter, blotting paper, copying paper, and the thin paper known as tissue (China).	do	.10
745	Paper, sized, for writing purposes	do	.20
746	Paper, rag or brown, and for packing purposes, even when coated with pitch or tar.	do	.05
755	Paper, cloth lined, impermeable paper, and parchment	do	.20
760	Paper for cigarettes	do	.15
761	Paper, ruled, for documents, letters, account, or music, or paper cut for same.	do	.30
787	Pumps and turbines	Per kilogram, gross	.01
792	Cranes and diving apparatus	do	.01
800	Steam engines and their extra pieces	do	.01
802	Machinery and apparatus for any purpose whatever, not specified, and their extra pieces when arranged for other motor not of crank, pedal, or lever.	do	.01
806	Pile-drivers	do	.01
808	Presses for printing and lithographing, type cuts, stones, and other special materials pertaining thereto, not specified.	do	.01
809	Clocks for towers and public buildings	do	.02
845	Detonators of all kinds for explosives	do	.05
846	Dynamite and other explosives, not specified	do	.03
848	Wicks and fuse for mines	do	.03
849	Powder for mines	do	.03
851	Pyroxilin or gun cotton	do	.03

ART. 2. The notes explanatory of the tariff of the ordinance in force, carrying the numbers 103, 250, 251, 252, 253, 254, 260, and 262, are hereby modified in the following form and tenor, to wit:

Note 103.—Fencing wire is made of galvanized iron, as well as its coupling. Sometimes it is formed of two wires twisted into a spiral, into which are inserted at intervals small rosettes formed of iron plates and pointed barbs. At other times the wire is substituted by a galvanized iron tape, with a width of 1 or 2 centimeters, which has also a spiral twist and is fitted with barbs. For the same purpose a double wire is employed, twisted in open spiral, without barb, formed with wires of galvanized iron, for telegraph purposes.

Note 250.—The paragraph 742 of the tariff refers to the scraps which can only be utilized as manufacturing material and to the pulp of vegetable fibers for the same purpose, even

ovided they are not tinted and are perforated at distances not to exceed 10
e tinted pulps in sheet shall be quoted as beaten card, and those of natural
do not meet the conditions of perforation, shall be also on a par with beaten
punctured so as to render the board useless for any other purpose; this to
f the parties at interest and at their expense.

aragraph 743 refers to paper without sizing or half sized, white, designed for
oks and periodicals, and whose surface, not being finished, is comparatively
table for letters or manuscript documents. This classification embraces as
n as can not be written upon with writing fluid without spreading the ink, thus
e of the characters formed by the pen. Half-sized paper shall include such
ng without blur, but whose surface is scratched and the writing on the
causes the ink lines to spread, in which case the ink forms circles round the
, sometimes continuous, sometimes in the shape of radii.

aper without sizing or half sized, to which paragraph 744 refers, as suitable
books and periodicals, must be white and of finished surface. This classi-
paper of tinted pulp suitable for impressions of covers, etc., of essays, dis-
lso advertisements, posters, etc., even when the paper is not finished; also
purposes, blotting paper, paper for copying letters, and the white and col-
only styled tissue (China); paper for counterdrawing, such as treated with
n, or other similar substance, acquires a transparency that adapts the same
f receiving impressions of plans or other drawings. Paper prepared with
receive heliographic impressions, and material prepared with mucilages
eceive the impression of plans, etc., come under the same rating as this

aragraph 745 includes paper sized suitable for writing purposes. Sized
hich the sizing material is mixed throughout so that, should the surface be
t can be written upon without causing the ink to spread out and blur the

aragraph 746 includes paper of rags or brown paper, grayish or yellowish,
or of wood pulp or with streaks of coloring; also paper for packing pur-
r color or thickness, such as the yellow manilla, those of gray tint, and
lp, even when coated with tar or pitch or finished in satin or sizing; pro-
hey are suitable for packing purposes.

aragraph 755 embraces papers backed with some cloth to strengthen them,
ned papers, papers waxed or of rubber for use in press-copy books, and
of all classes.

his note refers to paragraph 761, and includes all paper cut to a proper size
, memoranda, or documents, in single or double sheets, known as "florete"
(foolscap and legal), etc., and all ruled and tinted paper for letters, state-
or music.

he notes explanatory of the tariff itself are added the following:

This note refers to paragraph 182 of the tariff, which includes as refined
hat which, having been more or less clarified, is of color varying from gold
yellow and sometimes of the colorless aspect of refined oils. Attention
id to the existence of sediment, or the lack of transparency, or the turbid
oil, but only to the matter of its coloring as indicated.

his note refers to paragraph 182*a* of the tariff, which treats of crude cotton oil
of reddish-brown color, that has not been discolored; even though having
ay be transparent and not have sediment.

other notes explanatory not modified by article 2 of this decree shall be and
rce and vigor, even in case the paragraphs of the tariff to which they refer
ed either by reduction of the unit of rate or of the rate itself.

ART. 5. The treasury department shall modify the vocabulary attached to the customs ordinance now in force in such part as shall be necessary for the adoption c to the modification and expansion of the tariff as contemplated in the present decree.

ART. 6. This decree shall take effect on the 1st day of December, 1892, as far cerns merchandise the import duties whereon are reduced thereby and on the 1st January, 1893, as far as concerns other merchandise; provided, in all cases, the sa introduced by the frontier or the vessels carrying the same to the port of destinatio such port after the hour of midnight of the day just preceding.

COMMERCE OF MANITOBA.

REPORT BY CONSUL TAYLOR, OF WINNIPEG.

AREA OF THE WINNIPEG DISTRICT.

The Winnipeg consular district, as recognized by the Departmen cludes the parallelogram of central Canada bounded on the east by the ern coasts of Hudson Bay and Lake Superior, on the west by the Mountains and Alaska, on the south by latitude 49° (or the interna boundary between the United States and Canada), and on the north Arctic Ocean—an area of 800,000 square miles, with a population of 2 civilized and 50,000 aborigines.

DUTIABLE IMPORTS.

The commerce of Manitoba and York will be first considered. foreign imports for the year ended June 30, 1891, amounted to $1,95 returning a revenue of $620,349.60. The relations of the United Stat Great Britain to these importations will be shown by the following tab

Table showing the imports into Manitoba and York from the United States and Great for the year ended June 30, 1891.

Articles.	United States.	Gr
Ale and beer:		
In bottles	$16,103	
In casks	3,035	
Animals, living:		
Horned cattle	1,535	......
Horses	25,166	......
Hogs	1,686	......
Sheep	820	......
Other	469	
Baking powder	21,067	
Bells	1,415	
Billiard tables	1,330	......
Books	20,908	
Brass, manufactures of	4,280	
Breadstuffs	42,423	
Brick and tiles	4,666	......
Candles	999	
Carriages	20,236	
Clocks	2,200	......

Table showing the imports into Manitoba and York, etc.—Continued.

Articles.	United States.	Great Britain.
Coal, bituminous	31,866	....
Coffee	2,952	73
Copper, manufactures of	10,627	909
Cotton, manufactures of	13,829	85,947
Drugs and chemicals	8,985	5,687
Earthenware and china	4,759	7,236
Fancy goods	3,440	13,231
Fish	6,765	1,151
Flax, manufactures of	1,800	26,713
Fruits, dried, and nuts	46,583	674
Fruits, green	94,626	128
Furs and manufactures thereof	1,140	4,431
Glass and manufactures thereof	11,252	3,396
Gloves and mittens	3,320	7,885
Gold and silver and manufactures thereof	2,158	1,305
Gunpowder and explosives	8,318	3,669
Gutta-percha, manufactures of	5,110	8,350
Hats, caps, etc	7,857	7,887
Honey	370	69
Hops	5,228	1
Iron, manufactures of	243,879	14,371
Steel, manufactures of	32,398	28,367
Jewelry	7,117	1,265
Leather and manufactures thereof	21,053	2,047
Musical instruments	7,237	637
Oils:		
Animal	802	....
Mineral	21,021	8
Vegetable	1,694	2,380
Other	4,105	....
Paints and colors	1,304	167
Paper and manufactures thereof	22,516	5,520
Provisions	117,981	4,421
Sails for boats	1,312	427
Salt in bags	1,607	....
Silk and manufactures thereof	1,662	41,453
Slate and manufactures thereof	1,833	12
Soap	2,882	1,206
Spices	578	1,015
Spirits	3,539	9,768
Stone and manufactures thereof	2,356	1
Sugars	10,109	2,512
Tallow	7,458	....
Tea, black	3,834	....
Telephones	26,534	....
Tin and manufactures thereof	1,504	258
Tobacco and manufactures thereof	17,902	1,097
Twine	7,537	521
Vegetables	10,492	71
Watches and materials	4,155	129
Wines	407	3,907
Wood and manufactures thereof	83,587	2,147
Wool and manufactures thereof	1,973	255,547
Miscellaneous	101,954	116,022
Total	1,214,665	655,023

The total dutiable importations of Manitoba and the Hudson Bay
included $83,781 from other countries, the leading articles of whic
as follows: From Belgium—window glass, $11,609; from France—
stuffs, $395; earthenware and china, $689; fancy goods, $604; fruits
and nuts, $1,725; spirits, $10,475; wines, $2,434; from Germany—
manufactures, $4,481; drugs and chemicals, $573; gloves and n
$963; fancy goods, $2,005; fruits (dried) and nuts, $302; furs and
factures, $1,203; musical instruments, $922; silk manufactures,
woolen manufactures, $5,997; from Japan—drugs and chemicals,
earthenware and china, $1,002; fancy goods, $326; silk manufa
$829; wool manufactures, $718; from Spanish West Indies—tobac
manufactures thereof, $2,842; from Spain—fruits (dried) and nuts,
wines, $2,568; from Portugal—wines, $1,996; from Austria—earth
and china, $343; from Iceland—breadstuffs, $309.

Dutiable goods imported at Port Arthur, Ontario, have been $3
consisting of the following articles: Coal (bituminous), $309,049;
etc., $9,145; coal oil, $26,231; iron and manufactures thereof, $6,49
goods, $1,546; fruit and vegetables, $19,311—all imported from the
States, except $1,583 from Great Britain and $3,937 from other co

Dutiable importations at Fort McLeod, Northwest Territories,
from the United States, have been as follows: Horses, $35,446;
cattle, $5,320; sheep, $6,166; breadstuffs, $2,428; carriages, $3,33
(bituminous), $375; manufactures of iron and steel, $41,781; pro
$4,312; spirits, $15,347; tobacco, $637; lumber, $31,020; wool m
tures, $838; sundries, $8,196; total, $155,246.

FREE IMPORTATIONS.

The Manitoba importations of free goods, including entries at W
and the frontier ports of Emerson and York, were: From the United
$741,201; from Great Britain, $71,476; from other countries,
total, $842,337. The leading articles from the United States were:
cite coal, $30,554; logs, $412,244; lumber and timber, $8,419; w
fuel, $22,310; horses, $20,875; eggs, $8,160; furs, $2,891; grease,
hair, $989; broom corn, $266; green fruits, $8,254; leaf tobacco,
drugs, $5,208; fish, $677; steel rails, $35,441; articles for the Do
Government, $1,220; articles for army and navy, $935; settlers'
$151,797. The leading articles from Great Britain were: Salt, $712;
$1,410; drugs, $659; fishing nets, $6,730; mining machinery,
tin plates, $4,859; articles for the Dominion Government, $1,468;
for army and navy, $1,404; donations to missions, $3,735; settlers'
$16,618; tea, $12,674. Other imports of tea were $11,658 from
$11,988 from Japan, $2,410 from British East Indies, and $2,54
India.

Free goods imported at Port Arthur were as follows: Anthracit
$91,026; fishing twines, $5,814; fruit, $392; settlers' effects, $1,21

hair for plastering, $155; other goods, $9,190; total, $114,-
the United States, except $1,092 from Great Britain.
ods imported at Fort McLeod, Northwest Territories, were as
rs' effects, $14,125; steel rails, $137,370; other, $188; total,
lusively from the United States.

EXPORTS.

ba exports, including only shipments from Winnipeg, Emer-
nd York, were as follows: To the United States, $1,022,251;
in, $589,704; and to other countries, $169; total, $1,612,124.
States the exports consisted mostly of the following: Fish,
es, $97,900; buffalo bones, $20,091; furs, $74,749; hides,
, $544,927 (passing in bond to Canada and Europe); vegeta-
(all but $370 potatoes, the crop in the Northwestern States
educed); Seneca root, $20,257. In addition, there were ex-
Jnited States the following articles, more properly described
migrants, although enumerated by officers of the Canadian
lows: Books, $1,469; carriages, $1,447; clothing, $11,493;
ts not enumerated separately, $17,604; iron and steel manu-
s, sewing machines, etc.), $8,533; musical instruments,
manufactures (furniture), $1,699. The exports to Great
'urs, $540,052; wheat, $29,116; and household effects, $2,450.
s from Port Arthur, Ontario, were $304,752—$275,131 to the
and $29,621 to Great Britain—consisting of: Bullion, $510;
4,220; fresh fish, $21,922; furs, $140; and sundries, $18,539.
s from Fort McLeod were $4,794, mostly to the United States.

CANADIAN REVENUE.

oregoing aggregate of $2,482,977 of dutiable goods the duties
nted to $787,221.29, or an average of 35 per cent ad valorem,
ific duties expressed in ad valorem.

PACIFIC TRADE.

material change in the trade relation between this consular
e Pacific coast, the exchanges with British Columbia being
h of exports, principally flour, butter, and eggs, with return
ish, fruit, and lumber of equal amount.

DOMESTIC OR INTERPROVINCIAL COMMERCE.

tic exports to the eastern provinces have been chiefly 15,000,000
eat, not exceeding an average of 60 cents per bushel, and
th shipments of other cereals, fish, and furs, to $10,000,000.
estimate (in the absence of official reports of railway trans-
t the domestic imports into this consular district from the
ces and British Columbia will be double the foreign importa-
5,176.

AGGREGATE TRADE.

The following table shows the aggregate trade:

From or to—	Imports.	Exports.
Canada	$7,195,176	$10,000,000
United States	2,745,789	1,302,356
Great Britain	729,184	589,704
France	24,310	....
Germany	23,627	....
Belgium	11,824	30
Spain	6,702	....
Holland	4,419	....
Portugal	1,996	....
Austria	621	....
Switzerland	912	....
Italy	226	....
Denmark	46	....
British West Indies	952	4
Spanish West Indies	5,062	....
Spanish possessions	238	....
China	11,708	....
Japan	18,534	169
Iceland	309	....
British East Indies	2,055	....
Total	10,783,690	11,892,263

AGRICULTURE.

Passing from the general trade statistics of the fiscal year ended 1891, it has required more than the remainder of the calendar yea termine the proportions and movements of the crop of 1891. The confident anticipations by the department of agriculture of Man 23,191,599 bushels of wheat from 916,664 acres, 14,762,605 bushel from 305,644 acres, and 3,197,876 bushels of barley from 89,82 These estimates were realized from barley and oats; but fields plo wheat in the spring were injured by frost, and the exposure of a large of the crop in open stooks and badly constructed stacks (many circu concurring to interrupt the seasonable harvesting and thrashing of t have reduced the aggregate of wheat available from Manitoba and th west Territories to 15,000,000 bushels; nor has the return to the exceeded 60 cents per bushel. Similar results will follow in the fut the Minnesota and Dakota practice is invariably followed of never ground to wheat unless summer fallowed or plowed in the autum previous year.

FISHERIES.

The leading export of Manitoba to the United States is fish f great lakes and rivers connecting with Hudson Bay, of the value of of which $62,938 is represented in the records of consular certific balance of $35,000 having been exported in quantities less than value and requiring no consular papers for entry at the frontier.

ts during the year 1891 were distributed as follows:

	Value.	To—	Value.
	$13,495.58	Denver, Colo	$5,675.02
	30,870.47	New York city	2,213.35
	9,052.73	Kansas City	1,000.00

nay also be represented as follows:

Description.	Quantity.	Value.
	Pounds.	
	943,272	$46,017.84
	218,139	7,254.92
	189,685	4,305.01
	128,812	3,660.36
	34,643	929.87
	1,394	29.34
	4,246	84.92
	200	24.00
	39	.89
	1,520,430	62,307.15

nt of fish to the United States from Port Arthur agency for
was $21,621, making an export from this consular district
an aggregate of 3,000,000 pounds, which is increasing an-
ity of 75 cents per 100 pounds is no material obstacle to the

RAILWAY CONSTRUCTION.

e population of Canada advances slowly (the census of 1891
ilation of 4,823,344, or an increase of only 11½ per cent,
r cent ascertained in the previous decade), yet capital is not
the prosecution in a remarkable degree of railway interests.
ng of 1892 western Canada had in operation 4,000 miles of
00 people, and the current season will witness an extension
Pacific system fully 200 miles westward to the Scuris coal
ba and south of Calgary in the direction of Montana and a
pass through the Rocky Mountains to the valley of the
. It is well understood that the Sault Ste. Marie Railway,
Superior, during 1892–'93 will be extended through Minne-
to a connection with Regina, on the Canadian Pacific, the
Northwest Territories of Canada; that the lines of the Great
Northern Pacific will closely follow, if they do not traverse,
al frontier simultaneously; and that the projectors of a line
of Hudson Bay, aided by a federal land grant valued at
d a bonus of $1,500,000 from the Manitoba government,
success in their efforts to enlist English capital.

JAMES W. TAYLOR,
Consul.

ATES CONSULATE,
Winnipeg, June 30, 1892.

AMERICAN INTERESTS IN MADAGASCAR.

REPORT BY CONSUL WALLER, OF TAMATAVE.

In transmitting this, my first annual report, I am forced to reiterate and emphasize the following paragraph found in the report of ex-United States Consul W. W. Robinson. On page 936 of Commercial Relations of 1878 Consul Robinson says:

> Although present demands will not warrant the establishment here of a house restricted to any one line of trade, I think there is a good opening at this port for one American wholesale and retail house in general merchandise other than brown cottons and oil, the market being fully supplied with those articles by parties well established. Such a house should also do a commission business in any and all kinds of specialties and American novelties, and, if conducted by an American upon American rules of trade, would soon take the trade which now goes to Europeans and the representatives of the various eastern races.

I doubt not that an American wholesale and retail house could in a very short time build up a splendid business in Madagascar. Such a house could soon become a wholesaler to the city of Tananarivoo, containing 100,000 inhabitants, and to the smaller towns, as well as to the grocers of Tamatave, of which there are ten of considerable importance and about double that number of smaller caliber. All these grocers are doing a very good business, and those wholesaling on a small scale are making money; but these houses would be unable to compete with American wholesalers, either in the class of goods to be sold or in business tact.

It should carry a miscellaneous assortment of merchandise for the Madagascar market, among which should be included the following articles: Flour in barrels, corn meal, oatmeal in packages of 1 to 4 pounds, cured hams and bacon, salt pork; pickled, corned, and dried beef; pigs' feet, and such canned goods as cove oysters, lobsters, salmon, and sardines; canned fruits, such as peaches, pears, apples, and apricots; vegetables, as tomatoes, asparagus, peas, and corn. Milk and soda crackers and sweet biscuits will also sell well in this market; also, condensed milk and creamery and manufactured butter in cans of 1 to 5 pounds.

An assortment of hardware, such as spades, hatchets, large and small axes, handles, nails, bolts, screws, door locks and fastenings, hand and crosscut saws, and carpenters' tools, would also find sale in this market.

Light and heavy prints, muslins, satines of all grades, lawns, challis, and all kinds of middle-grade goods, including flannel for underwear in damp weather—such being used by all foreigners—might also be tried.

AMERICAN IMPORTS.

I wish to call the attention of the American merchants, through the Department, to the subjoined table, showing the quantity and value of goods, including petroleum, imported from the United States within the period mentioned therein, and from which it can be seen at a glance that, if pushed, se goods might be materially increased in this market, as I emand for such merchandise will increase.

direct imports of American products into Madagascar during the year ended August 12, 1892.

Articles.	Quantity.	Wholesale value.	Amount of duties.
gallons...	32,000	$3,520	$252
bales...	7,500	581,250	58,125
		584,770	58,377

contains 250,000 square miles and a native and foreign pop- ıt 6,000,000, two-thirds of whom wear cotton clothing; ırths of the foreigners are consumers of coal oil, or pe- efore, I can not see why the trade in these goods should a footing as would warrant a steady increase from year to

ınt of the fact that American manufacturers of cotton goods blesome and unjust obstacle to contend with in this market. ıe natives, who are our largest buyers, prefer American cot- of American brands of these goods are imported into this ıgland and other countries and sold as American cottons One house, which has been recently started here, is constantly of business. The manager disposes of his goods rapidly and vantage. This gentleman says that English manufacturers etter terms than he can obtain from American manufactur- ıts. If there is any means by which this ruinous practice ed, it will be greatly to the interest of American commerce ns in force, and thus protect an increasing trade, furnishing ıerican products for years yet to come, and especially while ıe two countries entertain such cordial relations toward each

. . . . .

to be no reason why the amount of imports in various Amer- ld not be written in seven to eight figures, and thus neces- ırger field for American labor in the producing, marketing, manufacturing of these goods; in short, if the American im- raised from $584,770 to $1,000,000 annually, it would not atician to demonstrate the benefit to American labor by ods must be produced and placed upon the market in Mada-

issing this subject, I may remark that considerable quantities tons are imported into Madagascar in French and English consequently credited to the country to which the ship be- e, no report of the amount and value of these goods can be

. . . .

EXPORTS TO THE UNITED STATES.

Table showing the exports from Madagascar to the United States for the year end
12, 1892.

Articles.	Quantity.	Value.
India rubber......pounds...	45,490	$42,229.43
Dry-salted hides......number...	163,838	215,859.27
Total......	......	258,088.70

MEANS OF TRANSPORTATION.

There are three regular lines of steamships visiting the port of Ta
viz: The Messageries, running between Marseilles, Tamatave, Bour
Mauritius, landing mail and passengers at Tamatave on the 7th and
each month; the Donald Currie, running between London, Tamat
Mauritius, doing both a freight and passenger business; and th
Steamship Company, running between Southampton, Tamatave, a
ritius. The route of both the last-named companies is via the South
touching at Cape Town and all South African ports. The route of
sageries is through the Suez Canal, calling at Aden and all ports al
route.

All these steamers are provided with the most comfortable arran
and, although not quite so large, compare favorably with the grea
Atlantic steamers. Besides these, sailing ships from America, E
France, Germany, and India make regular visits to this port.

COPPER, IRON, AND LEAD.

Copper is found in great abundance in Madagascar; but, on ac
the fact that there are no railroads or other means of transporting th
article of commerce from the interior to the seaboard, no attention
to it.

What I have said relative to copper also applies to iron and lead
I am informed by miners from Australia, America, South Africa, a
countries, can be found in great quantities in almost all parts of th
But as yet these valuable products have not been disturbed or brou
requisition for the benefit of mankind, for whom they were created.

GOLD.

It is generally conceded by competent persons that gold exists i
quantities in Madagascar, and, were it not for the fact that the Malaga
ernment persists in charging such an unreasonable percentage, viz, 56
on all the gold or silver found, and that the prospectors have to fu
the machinery, gold-mining, I doubt not, would become a profitabl
ment in a very short time.

unt of alluvial gold is gathered by the natives and sold in large tities to men of means, who make it a business to traffic in etal. Bankers and other persons export annually to England usands of pounds of gold.

the customs officers at Tamatave to furnish me with a statene exportation of gold, but they did not seem inclined to do hat if a true statement could be obtained some very inters astonishing, figures could be shown.

ghly important to lay before the American business men the ment found in the official report of the British acting consul, kersgill, for 1890–'91. Mr. Pikersgill says:

> year about 18,200 ounces of gold have passed through the capital for ex- the east coast. Adding 10,000 ounces as a moderate estimate of the left the island via the west coast and calculating that 10,000 ounces are and its vicinity, we arrive at a rough total of £110,000 worth of gold as a nths' scratching at the surface of the country's mineral deposits—a by no output, considering that ten years in chains was named as a punishment possession of gold dust and that mining is prohibited under a penalty of ns.
>
> ory state of things is on the eve of removal, and long before the close of nining development, by natives at least, is expected.

upon the above report in its issue of August 13, 1892, the ws says:

> kersgill's estimate of the illicit gold output is known to be far within the rities place the actual output at a very much higher figure than 38,200
>
> the standard is quite sufficient to show that, with gold-mining permitted the gold output will, apart from all other produce, more than establish a
>
> e case in the form of a tabulation:

Year.	Imports from Great Britain.	Exports to Great Britain.	Excess in favor of bills on Madagascar.
	£82,961	£83,618	£657
	84,733	98,833	14,100

f Mr. Pikersgill, as a matter of fact, covers only English exis therefore a very partial statement, since fully as large shipo France, Germany, and Italy, of which no statistics are at

more liberal fee for mining shall be allowed by the native the political status settled, I think it would be unwise for vest any capital in mining enterprises in Madagascar.

BANKING.

I beg to direct the attention of American bankers to the fact that there is now a splendid opportunity to establish a bank in Madagascar without delay.

Since the failure of the New Oriental Banking Company (limited), of London, England, which had a branch in Madagascar, there is a great demand for the establishment of a good nonpartisan bank in Madagascar.

Investigation will show that the Madagascar branch of the New Oriental was making money, and that it was in a very prosperous condition at the time of the suspension of its source in London. In support of this statement I respectfully suggest a careful perusal of my report on gold herein, which shows an increase on bills in favor of Madagascar to the amount of £13,443, or $67,215, in 1890 over 1889.

I must add that, after mature consideration, I have arrived at the conclusion that the establishment of an American bank, the principal branch of which should be at Tananarivoo and the other at Tamatave, would immensely contribute to cement the good relations now existing between the two nations. Such a bank would be encouraged by the Government of Madagascar.

GENERAL EXPORTS.

The following is a partial statement showing the general export of Madagascar products through the custom-house of Tamatave during the year ended August 12, 1892:

Articles.	Quantity.	Value.
Sugar.......pounds...	394,213	$1,971,065
Vanilla.......do......	2,131	8,524
Cattle.......number...	1,015	10,150
Total.......	....	1,989,739

It must be borne in mind that I am only able to show partial exports and imports from and to the port of Tamatave, and that I am unable to obtain the data showing the quantity and value of rubber, hides, rofia, and vanilla exported by the several large shippers at Tamatave; but it is safe to say that the amount of exports and imports far exceeds those made by Americans. There are also large shipments to and from Mananzary, Vatomandry, Diego Suariez, and other Madagascar ports.

JOHN L. WALLER,
Consul.

UNITED STATES CONSULATE,
Tamatave, September 10, 1892.

FIBERS OF NICARAGUA.

REPORT BY CONSUL NEWELL, OF MANAGUA.

since there was received at this consulate a letter from a firm aking inquiry about the fibrous plants that are indigenous to aragua and if a business could be carried on here profitably ibers. It is in answer to that letter that I have collected and facts contained in this report.

ion, I am confident, will interest many, as it is well known ie most valuable agricultural products is fiber, which enters facture of rope, cord, sacks, osnaburg, and the various classes are used in packing goods for transportation.

bles that produce fibers are numerous, but the one most cul- iot climates is that belonging to the family of agaves. The of this family is hennequen, found abundantly in Mexico, been a source of great riches to Yucatan and other depart- Republic. In Nicaragua it grows perhaps more vigorously and an in any other country; especially is it abundant in the de- Leon and Chinendega. With a view to foment the cultivation on. Roberto Sacasa, President of Nicaragua, then a represent- ess, proposed a law in 1883, which was unanimously adopted nd reference to which is made in this report later on. Not- that law, the subject did not receive the attention that it his abundant fountain of riches remained inactive until lately, aguan gentleman, Señor Dr. Don Fernando Sanchez, who, g all the advantages consequent upon the culture of fibrous ted a contract with this Government for the cultivation of d for the exclusive privilege of manufacturing sacks and cord- iber for a period of twenty-five years.

ns of this contract Mr. Sanchez binds himself to form and ntation of penca that will contain not less than 500,000 plants sh and have in service during the period hereafter mentioned t may be necessary to extract this fiber with a capacity suffi- production of 500 tons of fiber annually. He also agrees to on the machinery required to fabricate not less than 150 tons pe and a like amount of sacks. The plantation must be com- shed within the term of two years, counting from the date of of this concession, and the necessary machinery must be in year afterwards. This contract was ratified by Congress on 1891. The Government concedes to Mr. Sanchez for the y-five years the exclusive right to manufacture rope and sacks ans of machinery moved either by steam or hydraulic force. it binds itself not to rebate the duties now actually existing uction of cables and articles of cordage. The Government agrees to pay the freight on the machinery that Mr. Sanchez may intr within the term of three years and to transport the same free on the Na Railroad, save if he shall have sold or leased the same at the date of duction. During the continuance of this concession the enterprise o Sanchez will be exempt from all fiscal imposts. The employés will lieved from military service in time of peace and at all times from duties. The number of employés will be fixed in accordance with th of the Government. Should Mr. Sanchez deem it expedient to intr fibrous plants of a better quality than penca, the Government wil tribute 5 per cent of the cost of introduction and will pay the freig will also transport the same gratis upon the National Railroad. Po granted Mr. Sanchez to organize a company for the execution of thi tract.

The privileges conceded in this concession become inoperative plantation is not formed or the machinery is not in full working order a period of three years from the date of the ratification of this contra also becomes null and void if the works are suspended during ten co tive months, except for fortuitous circumstances.

As an evidence of good faith Mr. Sanchez is required to give ei bond or to deposit $2,000 in the Government treasury. So far as been able to ascertain, no steps have been taken to carry out the prov of this concession.

The law of March 13, 1883, conceded a premium of 3 pesos fo quintal of pita or bromelia and 1 peso for each quintal of cabulla (*Agave icana*) that was exported in fiber or manufactured. This law was to in operation for eight years from the date of the issuance of the decre a decree dated March 16, 1889, the provisions of the law of March 13, were extended.

It would be a lengthy task to enumerate all the fibrous plants that in Nicaragua, for, besides the very many that belong to the amaryllid family, almost all palm trees produce fibers.

The principal fibers that are produced and utilized in Nicaragua pita, bromelia pita, and the cabulla (*Agave americana*). Of these th cultivated is the cabulla. Panama hats are manufactured from pita. T cabulla and pita are abundant, they are not so much so as to warrant troduction and operation of machinery for the extraction of fibers.

The plants that produce pita and cabulla grow generally in rich so thrive best where there is an abundance of rain. The localities whe most and the best cabulla is produced are in the departments along t lantic coast. These fibers are found in places very difficult of access.

Fibrous plants have not as yet been cultivated to any great extent country, for the natives have never thought of exporting pita or ca They are satisfied to sell in this Republic the few hundred pounds tha extract. I believe that if mills were established here there would be ficulty in obtaining a sufficient number of laborers to collect the fibe

s transportation. As will be noticed in the previous lines of
e extraction of pita fiber in Nicaragua has become a monopoly.
ods that have hitherto been employed in the extraction of fibers
tive, as well as very simple. The leaves are first soaked for
fter which they are beaten. A species of bamboo is next split
gh which the leaves are drawn, and this is the way that the
ted. I am informed, however, that Señor Don Ricardo Con-
n, has an apparatus for beneficiating cabulla. The apparatus
, I think, the only mechanical appliance used here to obtain

t of the limited production, there is no exportation of fiber.
duced here is used in the manufacture of hammocks, hats, and
les being sold in this country. It would not pay to export
s Republic, unless both varieties named of *Agave americana*
the natural order amaryllidacæ were cultivated, and not far
t.

WILLIAM NEWELL,
Consul.

TATES CONSULATE,
Managua, August 15, 1892.

RADE IN THE KONGO FREE STATE.

REPORT BY COMMERCIAL AGENT MOHUN, OF BOMA.

honor to inclose herewith tables showing exports from the
tate from July 1, 1886, to June 30, 1891.
elieve these figures can be absolutely relied upon, as the State
being in its infancy the attention to detail has not been paid
ave been done under an older government; still, I think they
tely correct and will serve to show without a doubt that the
the fair way to prosperity.
tion with this subject I would state that the Société Anonyme
Commerce du Haut Congo has engaged the services of Mr.
ckles, an American gentleman from New York, long resident
(and who has had a large experience in coffee and rubber), to
ubber trade in this State and find good locations for coffee
Mr. Unckles, who arrived here from Europe on the German
Lulu Bohlen July 2, brought ten experienced Costa Rican and
ubber-cutters with him, and it will be the object of these men
natives to cut the rubber properly and bring the milk to them
nt camps, where they will prepare it in the proper method for
think this is a most important step, as the rubber now being
here is of a very inferior quality, much mixed with dirt, bark
, and oil from the bodies of the natives, where it is plastered on
e in carrying.

In regard to coffee, I would say that no coffee is now cultivated
Kongo, but what is shipped is the wild berry found by the natives in th
and brought down to the traders. This coffee is of rather poor quality
bean, and bitter taste. With proper cultivation it will improve.

The one shipment of copper was made by the Dutch house in 188
comes from near Manyanga, about seven days' march (say 120 mile
by north of Boma. Few whites have as yet been to the mines, a
natives do not care to have them come into their country. It is b
down in ingots and is of a very fine quality; but the natives do not
trade it, as they make most of their implements of warfare and hou
use from it.

Palm kernels are from the palm tree, found in the lower Kongo
and what is shipped from here does not come from more than seven
march (say 120 miles) from Boma in any direction. The traders sl
kernel in bags. The oil is boiled by the natives from the husk of the
and sold to the traders in balls of hard oil; it is then liquefied in the
ries and shipped in barrels to Europe, where it is refined.

The ivory shows a most remarkable increase and is the most v
article exported. It all comes from the High Kongo, both north an
of the river. Steamers bring it as far as Stanley Pool, and from t
Matadi (250 miles) native carriers bring it on their backs. I have
one day 500 carriers come into Matadi, each man carrying a tusk ave
65 pounds in weight. When tusks weigh 200 pounds, which not infre
happens, four men carry them. Most of the ivory now coming d
what is known as "dead ivory." Some of the elephants from whic
tusks came were killed one hundred years ago, and the kings of
have been storing it, placing the last tusks brought in on top of t
and when they required some goods from the coast traders the tusk
the bottom layers were taken. This system has prevailed for years,
is estimated that there is enough ivory stored in the interior to sup
world for the next century. It is estimated, but upon whose auth
can not discover, that there are still at least two hundred thousa
phants in central Africa. The only "live," or new, ivory which now
down is that procured by hunters attached to the different trading
I may add that live ivory commands a higher price than the dead.
expedition visited a native king some months ago in the interior.
leaving the commanding officer presented the king with a unifor
cocked hat, and a sword. The king, in return, presented the offic
one hundred and fifty tusks of ivory averaging 220 pounds each an
vided carriers to take them to the river. These people do not re
the value, and laugh at the trader for buying. Some of these king
stockades of ivory built around their dwellings.

Peanuts are shipped for the purpose of extracting the oil they c
Most of them go to the south of France, where the oil is made int
soap.

xports from the Kongo Free State by years from July, 1886, to June, 1891.

July to December, 1886.		January to December, 1887.		January to December, 1888.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Kilograms.	*Francs.*	*Kilograms.*	*Francs.*	*Kilograms.*	*Francs.*
4,193	1,206.88	9,634	2,878.84	9,761	2,928.30
327	376.05	....	....	....	....
18,069	79,503.60	30,050	116,768.80	74,294	260,029.00
1,409	2,818.00	2,327	4,182.25	4,055	7,096.25
461,664	207,748.80	1,028,022	462,609.90	1,033,612	465,125.40
18,666	373,320.00	39,785	795,700.00	54,802	1,096,240.00
1,078,204	217,640.40	2,954,906	590,781.20	3,773,957	754,891.40
822	305.50	6,204	1,596.20	6,350	1,587.50
3,284	3,612.40	5,385	5,923.50	2,012	2,213.20
....	....	....	....	443	487.30
....	....	....	....	9,401	18,802.00
....	886,431.63	....	1,980,441.45	....	2,609,400.35

anuary to September, 1889		January to December, 1890.		January to June, 1891.	
Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Kilograms.	*Francs.*	*Kilograms.*	*Francs.*	*Kilograms.*	*Francs.*
32,778	9,836.40	9,918	2,975.40	150	45.00
....	....	46,437	88,230.30	9,495	18,420.30
104,940	367,310.00	124,066	556,497.00	81,680	326,720.00
4,916	8,603.00	1,716	3,003.00	957	1,674.75
854,976	384,289.30	2,303,926	1,151,963.00	1,573,192	849,523.68
87,401	1,748,020.00	180,605	4,668,887.00	141,775	2,835,500.00
2,632,966	526,593.20	6,529,879	1,763,067.33	4,714,763	1,320,133.64
23,097	5,774.25	23,292	5,823.00	156	39.00
510	551.00	914	1,005.20	840	924.00
290	319.00	236	259.60	490	539.00
....	....	444	488.40	....	....
....	3,051,296.15	....	8,242,199.23	....	5,353,519.37

Articles.	Total.			
	Quantity.	Value.	Quantity.	Value.
	Kilograms.	*Francs.*	*Pounds.*	
....	66,444	19,870.82	146,176	$3,835.07
....	56,259	107,026.65	123,770	20,656.14
....	433,099	1,706,828.40	952,817	329,417.88
....	15,380	27,377.25	33,836	5,283.81
....	7,254,392	3,521,260.08	15,959,662	679,603.20
....	523,034	11,517,667.00	1,150,675	2,222,909.73
....	21,684,035	5,173,107.17	47,704,877	998,409.68
....	59,921	15,026.21	131,826	2,900.06
....	12,945	14,229.30	28,479	2,746.26
....	1,459	1,604.90	3,210	309.75
....	9,401	18,802.00	20,682	3,628.79
....	444	488.40	977	94.25
....	....	22,123,288.18	....	4,269,794.62

Table showing exports from the Kongo Free State by years, etc.—Continued.

RECAPITULATION.

Year.	Value.	
	Francs.	
1886	886,431.63	$171
1887	1,980,441.45	38
1888	2,609,400.35	503
1889	3,051,296.15	588
1890	8,242,199.23	1,590
1891	5,353,519.37	1,033
Total	22,123,288.18	4,269

As all these articles are traded for, it is probable that the value really 100 per cent below their actual selling prices in the European ma

R. DORSEY MOHUN,

Commercial Age

UNITED STATES COMMERCIAL AGENCY,
Boma, July 9, 1892.

HOW TO INCREASE AMERICAN TRADE.

REPORT BY CONSUL SMITH, OF THREE RIVERS.

Some time ago, while looking over an American trade journal, curred to me that there were many articles of great utility manufactu the United States and not handicapped by the Dominion tariff, and more that, though taxed, Canadian enterprise had not attempted to pro which an active and intelligent man might introduce here to his ow the manufacturers' great advantage; that although he might not find sale of any one of them an adequate return for his labor, he cou grouping a number together, build up a large and lucrative business. ing upon the thought, I selected a young man well known in the comm and familiar with its wants, and suggested that he convert his head variety shop for the sale of American goods. He was eager to make t tempt and at once placed himself in correspondence with the manufac of such articles as he thought he could sell. The result has more tha tified the experiment; he has secured a number of agencies, has an filled with samples, and is making many large and remunerative sales it is an enterprise which involves no risk to the manufacturer and one may be indefinitely extended, I have thought it best to report bot idea and its success to the Department.

NICHOLAS SMITH,

Cons

UNITED STATES CONSULATE,
Three Rivers, August 16, 1892.

WAGES IN LIVERPOOL.

REPORT BY CONSUL SHERMAN.

SHIPBUILDING TRADE.

ving are the rates of pay fixed by the unions of the respective his trade, and which are generally paid: Platers and angle-iron per day; platers' helpers, $1.09 per day; riveters (when en- day), $1.64 per day; blacksmiths, $1.58 per day; strikers, 97 ; ship carpenters (shipwrights), $1.70 per day; ship joiners, y; ship-painters, $1.37 per day; boat (small) builders, $1.70 ck-makers, $1.46 per day; laborers, $4.38 to $5.10 per week; ters and turners), $8.26 per week.

of labor in each branch are fifty-four per week.

DOCK LABORERS.

of pay given below are fixed by the National Amalgamated ck Laborers. The society is a strong one, and the rules laid spect to wages, hours, etc., are rigorously adhered to.

are from 7 a. m. to 5 p. m.; Saturday, 7 a. m. to 4 p. m.

s paid per day are as follows: Stevedores, $1.70; laborers go in ship's hold), $1.46; man over hatch, $1.33; man over iggers, $1.33; ordinary work, $1.21; quay laborers, $1.09; s, $1.46; weight-takers, $1.33; receivers, $1.33; measurers, ers, $1.33.

SEAMEN.

s on steamers to the Mediterranean are as follows: Sailors, onth; firemen, $19.46 and $20.67 per month.

stward the wages on large steamers are: Sailors, $21.89 per en, $24.33 per month.

thward the wages on steamers are as follows: Sailors, $18.24 iremen, $20.67 per month.

vessels sailors are paid $14.59 per month.

ving wages are paid on steamers to the Baltic: Sailors, $20.67 iremen, $21.89 per month. Stewards generally are paid $14.59

VARIOUS TRADES.

receive 17 cents per hour. Apprentices to the trade receive week for the first year, 97 cents for the second, $1.21 for the or the fourth, $1.94 for the fifth, $2.43 for the sixth, and $2.92 h. In summer time the hours are fifty-five per week, and in ty-seven and one-half.

re paid 15 cents an hour. Apprentices are paid 97 cents per first year, increasing yearly until the seventh year, when they receive $3.40. The hours are fifty-five per week in summer and fort and one-half in winter. Grainers and writers are paid 2 cents per ho the above rates.

Joiners are paid 16 cents per hour and are required to work fi hours per week. During four months in winter where there is no a light supplied they are paid 17 cents per hour for fifty hours. Appr to this trade are paid the same as plumbers' apprentices.

Foremen in the plumbing, painting, and joinery trades are pai $9.73 to $12.16 per week, according to arrangement.

Slaters and plasterers receive 17 cents per hour. Apprentices' range the same as plumbers' apprentices.

Bricklayers are paid 18 cents per hour and are required to work fi hours per week.

First-class bakers are paid from $7.78 to $8.75 per week; secon $5.83 to $6.80; and the third class, $4.38 to $5.34. Foremen's wag from $9.75 to $14.59 per week.

Stone masons' wages and hours are the same as bricklayers'. Ca building stone earn $4.25 per day of nine hours.

As to warehousemen, the following figures cover all the branches class of labor: Warehousemen, $8.51 to $9.73 per week; warehouse $1.09 per day; cotton porters, $1.09 per day; laborers, $1.09 p weighers, $1.21 per day; markers, $1.21 per day. The hours are a. m. to 6 p. m.

Laborers in chemical works are paid 66 cents per day and 79 ce night to commence with, and afterwards do not exceed 85 cents and 91 cents for night work. Boys under 18 years of age are paid per day.

Laborers (men and boys) handling palm oil are paid from $2.92 per week.

Drivers of all kinds of one-horse conveyances receive $5.10 to $6 week.

Barbers' wages vary from $6.80 to $8.51 per week. A few first-cla pay up to $10.94, but the large majority are paid at the former rate hours are from 8 a. m. to 9 p. m.; Saturdays, 8 a. m. to 11 p. m.

EMPLOYÉS IN THE MANUFACTURE OF STEEL WIRE.

One lot of laborers are paid from $7.29 to $8.51 per week, accor ability and the class of work upon which they are engaged.

Common laborers are paid $4.86 per week.

Mechanics' wages are $11.55 per week of fifty-five hours.

The wages of joiners are $8.51 per week of fifty-five hours.

Blacksmiths are also paid at the rate of $8.51 per week, but very earn more than $6.07 per week.

Bricklayers in these works receive $10.21 per week, but this amount erally increased to $14.59 with overtime. When required to work ted two days, and men employed at night work five days to

LEEDS AND LIVERPOOL CANAL.

of employés on the Leeds and Liverpool Canal are as follows:

Description.	Number of men.	Average wages.
		Per year.
rtment	1	$1,216.64
	1	583.97
	1	291.99
er annum and upwards	8	672.11
£100 per annum	34	253.28
	8	525.57
	12	361.17
	44	247.22
t	1	778.63
	1	656.97
	2	729.97
	7	78.63
	1	379.58
		Per week.
	143	4.90
	44	4.94
	19	6.40
	83	6.15
	7	6.07
	9	7.69
	2	10.15
	3	6.64
	2	5.59
	4	5.28
	52	5.44
	7	4.78
	4	6.38
	81	7.71
	97	7.25
	134	5.48
	13	5.12

GROCERY AND PROVISION TRADES.

ng is a fair and liberal estimate for employés in this trade:
29 per week; assistants, $5.34 to $5.83 per week; juniors,
per week. The hours are from seventy-six to eighty-five per

TANNING TRADE.

of men employed in the tanning trade are as follows: Fell-
d 16 cents per hour; curriers, 12 cents per hour; jobbers, 81
breaking, 10 cents per hour; splitting, 81 cents per day;
1 cents per day; machine men, 89 cents per day; salting,
wool room, 73 cents per day; tan shed, 48 to 68 cents per
1.21 per day; carter, 97 cents per day; joiner, $1.46 per
10 cents per hour.

CLAY TRADE.

The wages in the clay trade are as follows: Miners, 60 cents p eight hours; washers, 60 cents per day of eight hours; dry men, per ton; packers, 15 cents per ton.

MANUFACTURE OF ARTIFICIAL TEETH.

The employés of this manufacture are engaged as boys at $1.21 and their wages raised annually until competent, when they are p $6.32 to $7.29 per week according to ability.

ST. HELEN'S CONSULAR DISTRICT.

The wages paid to laborers, etc., in the St. Helen's consular di as follows:

Description.	Wages.	Description.
Colliers.		*Brick and pipe works.*—Continued.
Miners..........per day...	$1.46 to $1.94	Girls carrying off..........per week...
Firemen..........do......	1.46 to 1.58	Setting bricks in kilns..........do......
Limberers..........do......	1.13 to 1.27	Setting pipes in kilns..........do......
Packers..........do......	.99 to 1.23	Blowers in clay hole..........do......
Contractors..........do......	1.33	Laborers..........do......
Brow men..........do......	.85	In yard..........do......
Flint-glass works.		*Iron foundry and engine works.*
Glassmakers..........per week...	7.29 to 14.59	Fitters..........per week...
Glass-cutters..........do......	7.29 to 7.53	Turners..........do......
Joiners..........do......	7.29	Slotters..........do......
Blacksmiths..........do......	8.26	Drillers..........do......
Coopers..........do......	5.83	Smiths..........do......
Brick-setters..........do......	7.53	Smiths' strikers..........do......
Brick and pipe works.		Molders:
Firemen at boilers..........per week...	5.83	Sand..........do......
Pipe and brick burners..........do......	7.29	Loam..........do......
Assistants..........do......	4.86	Pattern-makers..........do......
Men at brick machine..........do......	5.34	Platers..........do......
Wheelers..........do......	2.43	Holders-up..........do......
Men at pipe machine..........do......	5.83	Helpers..........do......
Finishers (women)..........do......	2.92	Laborers..........do......

THOS. H. SHERMA

UNITED STATES CONSULATE, C
Liverpool, August 12, 1892.

WAGES IN THE COTTON INDUSTRIES OF THE W

REPORT BY CONSUL LINCOLN, OF ANTWERP.

I have the honor to transmit herewith a translation of a tabu ment submitted by Mr. Louis Strauss to the international congress held in this city, showing the wages paid in the cotton industries ent countries as affected by the various tariff systems.

GEORGE F. LINCOL

UNITED STATES CONSULATE, C
Antwerp, September 2, 1892.

MR. STRAUSS'S TABLE.

[Inclosure in Consul Lincoln's report.]

ONGRESS OF ANTWERP ON THE SUBJECT OF TARIFF LEGISLATION AND
OF LABOR LAWS. SECTION NO. 2, TENTH QUESTION: WHAT INFLU-
OTECTIVE TARIFF EXERT UPON WAGES?

WAGES IN THE COTTON INDUSTRY.

in 1892 by Monsieur L. Strauss, honorary consul, president of the Society
f Institute of Commerce, of Antwerp; vice-president of superior council
mmerce of the section of commercial geography of the chamber of com-

the weekly wages paid in the cotton industry in the several countries.

	Belgium (69 hours).	Holland (63½ hours).	England (56½ hours).	Switzerland (65 hours).
eparing	$4.40	$9.00	$9.50	$7.80
eparing	4.00	5.00	....	4.80
ing mill..	4.40	8.00	9.70	8.40
pinning	4.00	5.00	....	4.80
	$4.00 to 4.40	$4.00 to 5.00	8.60	8.40
	4.80	4.00	....	4.80
	4.50	4.00	....	4.80
	4.20	4.00	8.10	5.00
	4.40	5.00	5.30	6.60
	4.00	3.60	....	5.40
	4.80 to 5.60	5.00 to 7.00	$10.80 to 11.60	6.60
	4.40	5.00	5.30	....
	3.60 to 4.00	3.60	....	....
ing ma-	2.50 to 3.04	4.00	....	2.88
	2.50 to 3.04	4.40	5.10	2.64
	2.60	4.00	6.20 to 7.20	2.40
	2.40	2.40	2.60	2.04
frames	2.60	2.40 to 3.00	3.00 to 4.00	2.64
	2.00	....	....	2.40
	1.80	1.80	3.20	2.40
	5.20	5.00	7.50 to 8.87½	5.00
	1.80	....	3.00 to 3.30	3.00
	2.80	3.00	....	....
	2.60	1.60	3.20 to 3.40	2.52
	3.20 to 3.40	3.20	4.40	2.52
	1.00 to 1.80	1.80	2.75 to 3.25	1.92
d cloth:				
	3.00 to 3.20	2.40	4.00	3.96
	(*)	3.20 to 3.40	5.20	4.20
	(*)	(*)	6.65	(*)
oth:				
	....	1.60 to 1.80	....	3.60
	3.00 to 3.20	3.40 to 3.80	....	3.96

* Do not exist.

Table showing the weekly wages paid in the cotton industry, etc.—Continued.

Classification.	France (72 hours).	Spain (64 hours).	Russian Poland (72 to 78 hours).	British India (Bombay, 63 to 66 hours).
First foreman for preparing cotton	$7.00 to $8.00	$8.00	$9.00	$10.00 to $16.66
Second foreman for preparing cotton	6.00	4.00	8.00	4.00 to 5.00
First foreman for spinning mill	7.00 to 8.00	8.00	9.00	10.00 to 16.66
Second foreman for spinning mill	6.00	4.00	8.00	4.00 to 5.00
Foreman for weaving	7.20 to 8.00	$7.00 to 10.00	$9.00 to 10.00	10.00 to 16.66
Carpenter	7.20	5.00 to 6.00	3.60	1.33 to 2.66
Mason	6.60	5.00 to 6.00	2.50	...
Blacksmith	6.48	5.00 to 6.00	3.50	1.33 to 2.66
First stoker	5.60	5.00 to 6.00	3.20	1.00 to 1.66
Second stoker	3.60	4.00 to 5.00	...	...
Engineer	7.00 to 8.00	8.00 to 10.00	6.00	2.66 to 4.00
First oiler	6.00	4.00 to 5.00	3.25	1.64
Second oiler	...	...	2.75	1.00
Workmen tending beating machines	3.60 to 4.20	3.60 to 4.00	2.25	...
Card-sharpeners	4.40 to 4.80	3.60	3.20	.66 to 1.00
Carders:				
Men	4.20	3.60 to 4.00	2.25	1.00 to 1.20
Women	2.10		2.25	1.00 to 1.33
Workers of spindle frames (women)	3.00 to 4.20	2.80 to 3.00	2.12½	...
Bobbin-winders:				
Men	2.40 to 3.00	2.80 to 3.60	...	...
Women	1.80		1.20	.73 to .93
Spinners:				
Men	6.00	5.00 to 6.00	3.25 to 4.75	...
Women	4.20	...	1.50 to 1.75	1.00 to 1.20
Winders:				
Men	3.60	3.60	2.50 to 3.00	...
Women	2.40	2.80	...	.33 to .60
Fasteners:				
Adults	2.70	2.40 to 3.20	1.65	...
Minors	2.10	1.20 to 1.80	1.20	.73 to .93
Weavers of unbleached cloth:				
1 and 2 looms	3.60	3.60 to 4.80	2.25 to 3.00	.60 to .80
4 looms	(*)	...	...	.93 to 2.00
6 looms	(*)	...	...	...
Weavers of colored cloth:				
1 loom	(*)	...	...	...
2 looms	3.60 to 4.20	5.00	...	...

* Do not exist.

howing the weekly wages paid in the cotton industry, etc.—Continued.

	United States.			
tion.	Massachusetts (60 hours).	Pennsylvania (60 hours).	Georgia (60 hours).	Virginia (60 hours).
r preparing				
......	$16.50 to $20.00	$25.00	$18.00	$15.00
or preparing				
......	......	$16.00 to 18.00	9.00	9.00
spinning mill..	18.00 to 22.50	15.00 to 20.00	18.00	15.00
for spinning				
......	......	12.00 to 15.00	10.50	7.50
ving......	18.00 to 21.00	15.00	......	18.00
......	13.50	15.00	......	10.50
......	18.00	15.00	......	$10.50 to 12.00
......	12.00 to 13.50	18.00	......	12.00
......	10.00	12.00	9.00	7.50
......	......	10.00	......	6.00
......	10.20 to 12.90	15.00	15.00	15.00 to 18.00
......	5.40	9.00	......	6.00
beating ma-				
......	......	7.00 to 8.00	......	5.40
......	7.20	8.00 to 10.00	9.00	7.50
......	6.72	14.00	......	5.40 to 6.00
......		......	......	3.60 to 3.80
ndle frames				
......	4.50 to 6.00	5.00 to 6.00	......	4.50 to 4.80
......	7.50	4.00 to 5.00	......	3.00
......	6.00	......	......	......
......	......	10.00	9.95	3.60 to 3.80
......	6.00	4.00 to 5.00	......	3.60
......	6.00		......	......
......	......	5.00	......	......
......	3.90		......	......
ached cloth:				
......	3.60	12.00 to 17.00	......	......
......	4.00 to 4.20		......	......
......	7.00		......	......
ed cloth:				
......	......		......	......
......	......		......	......

NOTES BY MR. STRAUSS.

-General tariff slightly protective; tariff on cotton manufactures highly pro-
factories wished to introduce weaving with four looms, which had given such
England and the United States, but the workmen objected and in 1885 struck
t. In England and in the United States weaving is done with as many as ten

-Tariff fairly free, both general and special (cotton goods).
–Free trade.
d.—Tariff fairly free, both general and special.
Tariff highly protective.
ariff highly protective. Information furnished by the Belgian consul and fac-
lona. No note has been made of the loss by exchange, making the salaries 15

to 20 per cent less in value. The great number of fêtes in Spain, as well as the
of each village, has an influence on the cost of the production of all manufacturing
since the general expenses are the same for the complete week as for a week in w
holidays when the people do not work.

Russian Poland.—Tariff highly protective.

British India.—Free trade. Information obtained from the bureau of statist
department of finance and of the commerce of India, 1892, and also from the f
Bombay. The rupee is taken at 1.50 francs (30 cents). The figures in the table
on the cotton industry of the Bombay Presidency. In the north the workmen gai
per week and the women 20 cents.

United States.—Tariff highly protective. Statistics obtained from the Belgi
general.

EXPORTS FROM ONTARIO TO THE UNITED STA

REPORT BY CONSUL MONAGHAN, OF HAMILTON.

The volume of business has been falling off since October, 189
the present customs laws became operative; but the minimum has
been reached, as the articles most affected by said laws have pr
dropped out of the list of merchandise exported from the district.

Apples show a decrease of $7,500, which is largely due to the
25 cents per bushel.

Barley presents the most startling decrease, which is entirely du
duty of 30 cents per bushel. The trade will hardly revive until th
reduced at least one-half. Exports in 1890 amounted to $602,29
1891 it dropped to $336,588, and to $44,770 during the year just
In 1890 the value of barley exported more than equals the total val
exports from the district in 1892. The bureau of industries of
estimates the acreage and production of barley during the present
499,225 acres and 13,376,586 bushels, being the smallest crop rais
province for many years. Last year the acreage was 553,166 acres
production 16,141,904 bushels. The average yearly acreage and pr
during the past ten years have been 743,245 acres and 19,349,351
The British market has not, as yet, taken the place of the America
for Canada's barley.

The next noticeable decrease appears in the egg trade, which h
from $158,160 in 1890 to $39,865.64 during the last fiscal year.

There is a slight decrease in the horse business, notwithstand
very good horses can be bought in this market at from $75 to $100.
many of the cities of the Dominion, profiting by the experienc
"Yankees," are adopting the trolley system for street railways, t
will be to still further reduce the value of horses, and to a point w
horse trade may again become profitable for dealers from the Unite

The large decrease exhibited in the value of the goods exported
grants (so called) is not real, because the certificate issued by con
ficers to persons removing to the United States was discontinued fo

he past fiscal year; and consequently no data was obtainable
ne. In my opinion the real figures would show a large in-
ration from this district is increasing, and, as a rule, it con-
l class of people. Many English, Scotch, and Irish artisans
ointed in securing employment largely constitute the list. A
keep shifting between the border cities, but the care exercised
ment officers at Buffalo and elsewhere on the border has had
reaking up this practice to some extent. Bricklayers, stone
rpenters have been in the habit for years of vacillating between
towns in Canada and Buffalo, Rochester, Detroit, Cleveland,
kport and maintaining their residence and citizenship in the
ing over when business in their line is slack and returning to
hen they can secure employment. I have noticed that many
e removing their families to some of the cities named and
ntention to become permanent residents of the United States.
lambs show an increase of $3,728.80, which is practically all
mparatively few sheep are exported. The duty of $1.50 op-
ent, whereas the specific charge on lambs is about what the
ty amounted to under the former law; hence it is that Can-
ntinue to go over the border to be slaughtered.

se in stone of $5,373 simply means that the stone used in the
f the St. Clair tunnel, at Sarnia and Port Huron, was shipped
y of the Grand Trunk contractor a few miles east of this city,
ompletion of said tunnel exports in stone ceased.

se of $20,364 in tea may be accounted for on the ground that
ers ship large quantities direct to Canada in order to compete
r the Dominion trade, which they could not do if teas were
the United States, because of the 10 per cent duty, which
tendency to divert business to Canadian Pacific Railway steam-
y. The surplus after supplying Canadian customers is shipped
nd Chicago, as a rule.

se of $19,000 which appears in the turnip trade is not real.
decrease is caused by the rule of the Treasury Department
ments of $100 or less in value to pass the customs without con-
which must occasion a heavy loss in the revenue heretofore
the consular service, at least from Canada. It is notorious
pers take advantage of this rule and divide their shipments to
e liberal limit thus provided. The rule practically discontin-
ce of certified invoices for which the Government charges a
respectfully submit that the rule and not the fee ought to be
far as it applies to exports from Canada, as the discretionary
rule is practically a dead letter.

own to the last and most important item in the statement, I
the large increase in the wool business last year, in the face
ed duty, may be accounted for by the fact that the Canadian

wool-grower sold his clip at from 17½ to 19 cents, thereby enabling dealers to export as heretofore and compete with American wool of a like grade. The largest dealers in Ontario reside in this city, and from what I can learn last year's clip yielded but a slight margin and large quantities were sold without any profit merely to retain business connections. The clip this year is fairly good only. The shrinkage is said to be quite heavy on account of the inclemency of the season. The price at the opening was below that of last year, and continues to be; it runs between 16½ and 18 cents, rarely exceeding the latter figures and generally below them, except for most choice. While the increase of 1892 is large, the net increase over 1890 is only about $15,000; and it is very doubtful if the wool exports of the current fiscal year will equal the last. Let it be understood that the prices quoted are those at which the exporter buys the wool from the small dealers, who buy direct from the growers, who probably sell for about 16 cents.

CANADIAN STATISTICS.

The following statistics are gleaned from recent reports, and, being interesting, I beg to make them a part of this report. As they are taken from a verified statement, they are doubtless reliable. The number of miles of railway completed in the Dominion was 14,633 and the capital paid $816,622,758. There are 14,000 miles of railway in operation. The earnings of these are $48,192,099 and the working expenses $34,960,449. The net earnings are placed at $13,231,649. The passengers carried were 13,222,568 and the freight 21,752,290 tons, while the train mileage was 43,399,178. The table of fatal accidents is as follows: Passengers killed, 13; employés killed, 65; others killed, 118. Government and municipal loans promised to railways completed and under construction amount to $192,470,033. Of this amount $146,791,274 is from the Dominion.

WM. MONAGHAN,
Consul.

UNITED STATES CONSULATE,
Hamilton, August 20, 1892.

AMERICAN, RUSSIAN, AND SUMATRA PETROLEUM.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

The only import of the Straits Settlements from the United States of any moment is petroleum. For years it held a monopoly of this market. Russian case oil, since February, 1888, has been gradually working its way in until to-day its shipments equal those of the United States. As the amount of oil shipments from the United States decreased, the number of American sailing vessels fell off, until it was found difficult to obtain bottoms in which to ship rattans and gambier to the United States, causing great inconvenience to shippers and loss to the American carrying trade; for, unless American bottoms could obtain cargoes for Singapore, they could not contract for return cargoes. This state of affairs has gone on from year to year up to

te, when it now looks not only as though the American flag
ished from the Roads, but the entire case-oil trade with the
driven out of the market. Two circumstances have conspired
this result—the introduction of tank steamers loaded with
d the discovery of a new oil field at Langkat, Sumatra.

n oil syndicate is working energetically to accomplish this end.
cted receiving tanks on an island in the harbor, and their first
s expected by the 1st of September.

t here has already anticipated the fall in the price of oil that
n this system commences to operate by forming a syndicate
of the oil now on hand and such as has been ordered. They
rice up from $1.80 per case to $2.30, hoping that between
st of September they will be able to cover any losses caused
d fall in prices.

that the determination to revolutionize the export trade of
Batoum by substituting tank steamers for the ordinary method
unprecedented increase in the production of oil from the
hich reduced the price from 2*s.* per barrel to 2½*d.* In 1890
wells was three hundred and fifteen, yielding 4,670,000 tons,
t one-half was exported. At the end of the year seventy-
ls were in operation, increasing the output of crude oil by
r diem, the average price per barrel in that year having been
3*d.* In 1891 the price fell first to 1*s.* per barrel and touched
t at 2½*d.*, a fall exceeding in rapidity that of silver itself.
h a price could not pay, and some of the producers failed.
reased, but not to the extent necessary to get rid of the glut
thing had to be done. The suggestion to build tank steam-
oved type which could carry large quantities of oil at a cheap
tern markets was welcomed, and the Rothschilds, who have
he Batoum trade financially, were favorably impressed with the

l feature that threatens the American trade, as I have said, is
overed oil field in Sumatra.

tes Vice-Consul James Lyall, who is the secretary of the oil
dy mentioned, says, in regard to this field, in his oil circulars
ended June 30, 1892:

> important feature now before the trade is the new oil field, for some time
> recently become productive, in the northern part of the island of Sumatra,
> ngkat, with a seaboard on the Straits of Malacca. Concessions have been
> utch Government to both Dutch and English capitalists, but so far a Dutch
> ly one which has got to work, and after a commencement within the last
> is now reported to be producing from 15,000 to 20,000 cases per month,
> creasing output. Altogether, concessions have been granted for some 320
> hat has been pronounced by experts to be a very rich oil-producing territory;
> seacoast and not, like the American and Russian oil fields, far inland and
> excellent deep-water, well-sheltered harbor, its position may be said to be

unique. Also, the kerosene produced at Langkat is proved by a skilled English be of first-rate quality, being "water white," absolutely without "bloom," flashin test at 83° to 86°, and burning at 124° to 126°, the percentage of kerosene yie fully equal to good American and quite double that of Russian petroleum. Whe in mind that the Russian output in 1891 was 34,000,000 barrels, the bulk of whi tained from an area of about 7 square miles of the oil field near Bakoo, the ca the new oil field in Sumatra may be judged, supposing it turns out all that is said

I have talked with Americans who came from Pennsylvania to ta of the refining of the oil, and they corroborate everything state Lyall and claim for the new field a promising future. Of cou Langkat wells prove to be all that is claimed for them and th tank steamers turn out a success, the only hope that American oil part of the world lies in the adoption of the tank system, and, unle failures, the little carrying trade that is now done by America will cease. I have repeatedly pointed out that the American inte and all along the coast suffer from the want of attention, and t American firm would go far to remedy such a state of affairs.

The figures below, taken from the Colonial Blue Book for the will give an idea of the oil trade of Singapore for the past five year be seen that the total import for the year 1891 is below that o previous years, but quite up to the average.

Table showing the imports of oil at Singapore from 1887 to 1891.

Year.	United States.	Russia.	Burmah.	Other places
	Cases.	*Cases.*	*Cases.*	*Cases*
1887	311,960	....	....	3,1
1888	369,744	227,170	....	22,6
1889	510,365	367,383	....	2,0
1890	436,900	444,900	30	4
1891	397,971	362,066	548	1

The consumption per month averaged from 34,000 to 38,000 c

The question, of course, for American shippers to decide is wh trade is worth saving.

The Standard Oil Company of the United States evidently matter worth looking into, as during the past month it has had t here looking over the field.

I append an editorial clipping from the Singapore Straits-Tim 27, 1892, on the subject, which I think puts the entire subject in a

LANGKAT PETROLEUM.

Petroleum from Langkat, in East Sumatra, now such a disturbing element market, has only lately come into prominence from being pushed to the front by started in Holland. That company, through concessions from native chiefs, large tracts of oil-bearing land in that section of Sumatra, but at the outset workin leum wells met with serious difficulty from the inexperience of those in charge. T soon, however, disclosed the alleged fact that the land under concession contained

that every well sunk yields copiously. Experience and knowledge of the
soon so improved matters that the report of the company just issued antici-
of 1,000 cases a day before the end of the year, the intention being to in-
to 2,000 cases a day before the end of 1893. The land under the control
borders on Aru Bay, which is the only seaport in the Straits of Malacca on
Sumatra which is accessible to large vessels; and the company expects to
some dividend on the expected outturn of 1,000 cases a day, as it has now
o hectares of land. In the report much is made of the fact that the oil
et has met with a favorable reception at Penang, and that the lower cost of
rove to be an advantage against American and Russian competition. The
templates the building of tank vessels to convey oil from Langkat to the Straits
only a few hours' steam distant, and has taken steps to raise additional cap-
nan, at a meeting of shareholders on the 7th of June, mentioned as an en-
at petroleum which, on a yield of 1,000 cases a day, cost the company only
l be sold in Penang at a profit for $1.40 per case. The various influences
troleum oil trade in the far East generally and Singapore especially are
will run down to an exceedingly low ebb, so low, in fact, that the largest
f concerns now under way must necessarily come out on top. There is
y finished tank for Batoum oil at Pulau Bukum; there is the Langkat field
a considerable output with a complement of bulk tanks; there is the large
il trade, which, until recently, wholly supplied Singapore; and now there
at Singapore an agent of the Standard Oil Company of the United States,
ith a view of seeing whether the market here can not be worked so as to
ne Samuel's syndicate. In a word, the object of the Standard Company's
ion. He will look over the Langkat field and consider the prospects of its
ng the market in the Straits, and he will look about to see if petroleum tanks
at some convenient spot so as to be in close competition with those at Pulau

ROUNSEVELLE WILDMAN,
Consul.

TATES CONSULATE,
Singapore, August 5, 1892.

MINING LAWS OF MEXICO.

REPORT BY MINISTER RYAN.

honor to transmit herewith, for the information and use of the
a pamphlet published by Mr. F. P. Hoeck, of this capital,
at is believed to be a faithful copy and translation of the new
of Mexico, which went into effect on the first day of the current
ly 1, 1892.

THOMAS RYAN,
Minister.

TATES LEGATION,
Mexico, August 22, 1892.

MINING LAWS OF MEXICO.

[Inclosure 1 in Minister Ryan's report.]

SECTION I.—ABOUT MINES AND MINING PROPERTY.

ARTICLE 1. Mining property in the United States of Mexico shall be governed by the following bases, which will be regulated by the Executive Government in accordance with its constitutional faculties.

ART. 2. Subject to the present law are those mineral substances which can not be worked unless a previous concession be obtained and those for whose extraction work is required which may put in danger the lives of the workmen, the safety of the workings, or the stability of the surface.

ART. 3. The mineral substances for working which a previous concession is required under any circumstances are those which are hereafter enumerated, whatever be the nature, shape, or situation of their respective ore bodies:

(*a*) Gold, platinum, silver, quicksilver, iron (except marsh ores, loose surface ores, and ochers which are worked as coloring matter), lead, copper, tin (except float tin), zinc, antimony, nickel, cobalt, manganese, bismuth, and arsenic, be they found in native state or mineralized.

(*b*) Precious stones, rock salt, and sulphur.

ART. 4. The owner of the ground can work freely, without necessity for a special concession in any case whatever, the following mineral substances:

The mineral combustibles, oils, and mineral waters; the rocks of the ground in general, whether they serve directly or form part of materials for construction or ornamentation; the matter which forms the ground, as earths, sands, and clays of all kinds; the mineral substances excepted from concession in article 3 of this law, and generally all those that are not mentioned in the same.

Superficial or subterraneous excavations which the working of any of these substances may require shall always be subject to the regulations which are decreed for order and security in the mines.

ART. 5. Legally acquired mining property and that which in future will be acquired in accordance with this law shall be irrevocable and perpetual as long as the federal property tax has been paid in accordance with the regulations of the law by which said tax is established.

ART. 6. The newly acquired primordial mining title will be given by the department of development according to the regulations of this law.

ART. 7. Mining property, except in the case of placers and superficial ore bodies, is understood to be only underground and does not include the surface, which continues under the dominion of its owner, except that part of the same which the miner has to occupy in the cases and under the conditions mentioned in article 11 of this section.

ART. 8. The taking out of produce from a mine is completely limited by the respective boundaries and only can these boundaries be passed in accordance with the provisions of the regulations when the ground is unoccupied and after previous request for the respective amplification of the concession.

In order to enter into another's field, the consent of the owner is absolutely necessary, except in cases of legal right of way.

ART. 9. The water brought to the surface and coming from subterraneous workings of mines belongs to the owners of the same, and the regulations of the common law have to be observed in regard to the rights of owners of the ground through which these waters pass.

ART. 10. The work done for opening and utilizing mines and placers is for public benefit; therefore, in case of nonagreement, forcible expropriation can be proceeded with for the ground necessary for this object.

ART. 11. The mining concessionist is free to make arrangements with the owners of the surface ground for the occupation of the surface he needs, in order either to work placers or superficial ore bodies or to establish buildings and other mining requirements; but, in case

lo not come to an agreement in regard to extent or price, the expropriation will
with through means of the local judge of first instance, the following proceed-
served until article 27 of the constitution be regulated:

party shall name an appraising expert, and both experts shall present their valua-
ght days' time, counted from the day they received their appointment. If the
not agree, the judge will name a third expert as umpire, who shall give his
n the peremptory time of eight days, counted from his appointment. The judge,
count the opinions of the experts and the proofs which both parties present to
e experts are preparing their statements, shall fix the superficial extent and the
indemnity within the next eight days following. The decision of the judge
ng, and against it there shall be no other recourse but that of responsibility.

se the owner of the ground which needs to be occupied does not name his ap-
rt within eight days after being notified by the judge, this functionary shall
e an appraiser to represent the interest of the owner.

e it be uncertain or doubtful who is the possessor or owner of the property which
upied, the judge shall decide as amount of indemnity the sum resulting from the
of the expert named by the concessionaire and of the one which he himself ap-
resentation of the legitimate owner and shall make deposit of said amount in
same be delivered to the corresponding party.

xperts in making their appraisements shall base these on the value of the sur-
he damage which immediately results to the property, and the rights of way
e established on the same.

Mining property and other ordinary property bounding on it shall, as the case
the privilege of and be subject to legal right of way as regards free passage,
f water, drainage, and ventilation; and the judges shall conform in their decrees
same and the corresponding indemnities to the legislation of each State, fed-
territory, unless the same be modified by the following ruling:

egal right of way of drainage consists, on the one hand, in the obligation which,
article 21 of this law, the owner of a mining field is under to indemnify the
ther field for the damage done to him by not keeping up the drainage of the
workings or not draining sufficient to keep the water from flowing from one to
the other hand, in the obligation which all owners of mining fields are under
passage through their ground of tunnels or adits whose exclusive and necessary
rainage of one or various workings.

rainage tunnels, when not driven on the strength of the contract authorized
f this law, can only be undertaken by the owner or owners of mining fields to
nel is an absolute necessity.

case supposed by the foregoing clause all the owners of mining fields which
from the drainage obtained through the tunnel shall be obliged to pay their
lemnification in proportion to the benefits received, taking into consideration
l the condition of the mine.

riving of a tunnel shall not be commenced without previous permission given
ment of development, after hearing the opinion of the respective mining agent
nination and approbation of the drawings, in which the direction and the sec-
ojected tunnel shall be detailed.

aying ore found while driving the tunnel shall belong, in case it is encountered
onceded mining fields, to the owners of these, and, if found in unoccupied
ll be divided amongst the owners of all the fields which are benefited by the
proportion established by the foregoing clause 3.

en a tunnel is being driven and one or more veins are discovered in unoccupied
uest be made for the grant of the respective fields or of the unoccupied surplus
e orders of articles 14 and 17 relative to this law shall be applied, considering

those who undertook to drive the tunnel as explorers, in accordance with the f
article 13.

(7) Once the permission mentioned in the foregoing clause 4 being given by
ment of development, only in virtue of a special contract can other persons bu
receive benefit from the tunnel be considered as members of the undertaking.

(8) While the tunnel is being driven in his or their respective properties, th
mining fields which are crossed by the drainage tunnel can appoint a controller i
fidence, whose functions shall only extend to watching the work and giving n
mining agent or to the judge, as the case may require, of any abuse he may obser

(9) In those places of the drainage tunnels which, through whatever reason, d
cate with mine workings bars shall be put up which impede roadway or passag
the communication is made.

(10) Only in virtue of a unanimous understanding, expressed in a public do
tween the parties interested in a general drainage tunnel in accordance with th
clause 3 can the tunnel be used for any other object but drainage. In this case,
alty of nullity, all particulars regarding passage or transit indicated in the foregoi
shall be stated in the contract.

(11) The mines newly opened in places where they may be benefited by gene
tunnels already existing will be subject to the provisions of clauses 3, 7, 8, 9, and

(12) The legal right of way for ventilation consists in the obligation of eve
mining fields to permit the owners of neighboring fields to communicate with his u
workings, so that the communication may produce as a necessary result the ventil
could not be obtained in other ways except at great expense.

(13) Unless by special contract to the contrary, made into a public docu
owners of the properties giving and receiving the benefit, there shall always be pla
grating to impede transit or passage at the boundary line of the respective propert

(14) When a communication different from the one described in clause 12 a
tilates one or more workings, neither this service of producing ventilation shall gi
the miner who made the communication to exact indemnity from the owners o
workings that have been ventilated, nor shall these on their side acquire a legal r
which burdens the mining property which furnished the ventilation.

(15) If, while driving workings opened for the purposes mentioned in clause
ore be found, the provisions suitable to the case of clauses 5, 6, and 8 shall be ob

(16) Also, the provisions of clause 4 shall be observed as far as they suit the

(17) All the expenses occasioned by the workings which may have to be ma
to obtain ventilation and those for keeping them in future in good condition sha
sively for account of the party who requested the establishment of the right of w
tilation).

(18) For the establishment in future of a legal right of way to the benefit of
property and to the burden of another there shall be necessary either the consent o
of the burdened property, stated in a public document or in a declaration signed
before the judicial authorities, or an administrative resolution agreed to by the inte
ties, or a judicial sentence.

(19) The owner of mining fields who wishes to acquire a legal right of way
not receive the consent of the party who considers himself burdened by the same
to the department of development, which shall decide, within the space of time a
formalities established by the regulations, whatever it judges opportune, always
forehand the dissenting party. In case either the latter or the petitioner do not
administrative resolution, the right is reserved to them to apply to the respectiv
bunals within the time specified by the regulations. The decision shall be con
by the tribunal which gives the same to the department of development.

(20) In case the administrative decision be favorable to the petitioner and ad
opposing party, it can only be acted upon immediately by the petitioner giving b

rtment of development, for the indemnification of any damages in case the
eive judgment in his favor in the courts.

g of the three preceding clauses is applicable to all cases in which that
the other clauses may give rise to judicial contests.

ABOUT EXPLORATIONS, MINING FIELDS, AND MINERAL CONCESSIONS.

inhabitant of the Republic can freely make, in Government ground, explo-
o the discovery of mineral bodies; but if, instead of borings, excavations
hese shall not exceed 10 meters in extent, neither in length nor in depth.
necessary for this work, but previous notice shall be given to the respec-
cording to the provisions of the regulations.

rivate property no mining explorations can be made without the permission
representative. In case, however, this permission can not be obtained, it
rom the respective administrative authorities, who shall give the same in
e provisions of the regulations, bonds being previously given by the ex-
ge which may be caused, to the satisfaction of the authorities, after hearing
ound or his representative.

te buildings or their belongings explorations can only be made with per-
er. No explorations shall be permitted inside the precincts of populated
s, public buildings or fortifications, or in their neighborhood. The regu-
all these cases the minimum distance within which said works of investi-
ed.

onths' time, which can not be prorogued, counted from the date of the
ssion or of the administrative resolution mentioned in this article, only the
the right to receive mining fields.

nit of concession, or the mining field (*pertenencia*), in future shall be a
nited depth, defined above ground by that part of the surface which in hori-
ves a square with sides 100 meters long and bounded underground by the
corresponding to the same.

ning field (*pertenencia*) is indivisible in all contracts made about mining
h affect the ownership.

pt as regards the final disposition of article 13 of this law, the concessions
hall always be given to the first applicant and shall embrace, in all cases
sufficient free ground, the number of mining fields which the interested
but he shall clearly specify, in accordance with the dispositions of the
ation which the fields (*pertenencias*) which form his grant occupy.

main between the mining fields granted and others already existing a space
f mining grants, this space shall also correspond and be given in property
er.

III.—ABOUT THE MODE OF ACQUIRING MINING CONCESSIONS.

department of state and of the expedition of development shall name in the
nd in the federal district special agents in its service, before whom the ap-
g concessions shall be presented. These agents are authorized to collect
e tariff to be fixed by the department mentioned.

agents of the department of development shall receive the applications for
and shall note down immediately on the register the day and hour of pre-
hall thereupon proceed with the publication of the application and the
e fields (*pertenencias*) by the expert or the practical man whom they shall
se there be no opposition, they shall send a copy of the proceedings and
epartment of development for the corresponding approbation and the ex-
.

s shall fix the time within which these acts have to take place and shall
procedure of the agents.

ART. 18. The approbation of the proceedings being obtained and the title to the property having been given in favor of the concessionaire, the latter enters into possession of the mining fields without further formality.

ART. 19. The agents of the department can not suspend the proceedings for any reason whatever, unless there be opposition. When once the time is up which is fixed by the regulations, they shall be obliged immediately to send the protocol of the proceedings, in whatever condition it may be, to the department of fomento, so that after examination it declare the tardy applicant rejected, should the fault be his, or hold the agent responsible, if through him the case has been delayed. The tardy applicant can not again petition for the same concession.

ART. 20. When opposition is made by the owner of the surface ground to the request for any mining concession or to the making of the respective measurements, and he claims that the ore deposit does not exist, then, if there be found indications of a deposit on the surface or any excavations or workings of exploration in the deposit itself, the agent of the department of development shall reject the opposition. In case no indications of any ore body exist on the surface of the ground and there be no excavations or workings on the same, then a proceeding analogous to section 11 of this law shall be followed, the respective judge deciding whether or not the concessions shall be granted. His decision can be appealed against in both cases. The decree shall be communicated to the department of development.

ART. 21. The agents of the department of development shall suspend proceedings, in case there be opposition, and shall send the protocol to the judge of first instance of the respective place for the legal decision of the corresponding judgment. The judicial authorities shall advise the department of development of their decision.

SECTION IV.—GENERAL DISPOSITIONS.

ART. 22. The working of mineral substances, whether they belong to those that are acquired through a concession according to this law or to those that belong to the owner of the surface, shall be subject to all the dispositions which the provisions of this law may dictate in regard to police regulations and the security of the workings themselves; but if the owners conform to the regulations, they will, on the other hand, have complete liberty of industrial action, to work in the way that suits them best, to hurry, delay, or suspend for more or less time their work, to employ the number of workmen they wish and wherever it suits them best, and finally to follow whatever system they prefer as regards workings, extraction, drainage, or ventilation as they consider most suitable to their own interests. The owners, however, remain responsible for the accidents which happen in the mines on account of their being worked badly and for damages occasioned to other properties by reason of not taking out water or any other circumstance which may impair the interests of others.

ART. 23. When, in order to hurry the work in the mines of a locality, the necessity arises for making drainage tunnels, the execution of these workings shall be a matter of contract between the interested parties.

ART. 24. The partnerships or companies formed for working mines shall be governed by the dispositions of the commercial code, except as regards association, which are not admissible in mining matters.

ART. 25. The contracts for furnishing money to the miner, named until to-day "avio," shall in future have the character either of partnership, in which case the provisions of the foregoing articles shall be observed, or of mortgage. The mortgage in mining matters can be freely given in accordance with the regulations of the civil code of the federal district; but the indivisibility of the mining field (*pertenencias*), established in article 14 of this law, shall be taken into account, and the regulations of the commercial code as regards the register shall be observed, and for this purpose a special book of mining operations shall be opened. The holder of the mortgage shall always have the right to pay the tax mentioned in article 5 of this law and shall, through this payment, acquire a right of preference over the owner of the mine in regard to his own mortgage.

mortgage may be divided into mortgage bonds to name or to bearer, either constitute the debt or by a later document. In every case it shall contain ganizing the social representation of the holders of the bonds. These dis- those relating to the amount of the debt, to the conditions of the same, and all appear in print on each of the mortgage bonds.

the mortgage bonds can only take action against the debtor or the mort- ough their common representative, whose acts as regards their rights shall ll the holders.

trials by court in mining matters shall take place and be decided in the territories and in each State before the judges and tribunals which there rding to the regulations of the commercial code, and also shall be observed ribed in chapter 9, title 1, book 4, of said mercantile code, based on this, se of the administration indicated in the second clause of article 1030 of he payment of the tax.

new tax which shall be paid by all mining concessions, with the exception expressly exempt by contract, shall be a federal tax on the property and d by the respective special law.

other taxes on mining, the dispositions of the law of June 6, 1887, shall

ult of payment of the property tax, levied in accordance with the regula- re of the law which establishes the same, shall constitute, from the date w goes into force, the only reason for forfeiture of mining property, which s free of all burden and shall be conceded to the first applicant, in accord- isions of this law and its regulations.

industrial branch of mining shall belong to the department of state and of levelopment, colonization, and industry, which therefore can dictate, in ac- regulations of this law, all the measures it judges necessary for the pro- sperity of the mining industry and which shall watch that the said law be name the inspecting mining engineers it may think necessary to visit the or mineral substances, to study the same, to make investigations, and to hatever commissions the department may give them, in accordance with the by the regulations.

Executive Government shall fix, according to the terms of article 21 of the , the governmental punishments which those incur who infringe the dis- gulations which it issues for the enactment of this law.

nsgressions for which the agents of the department of development are re- judged by the judges of the corresponding district according to the respective

ransgressions committed in the mines remain subject to the corresponding this, however, shall not interfere with the governmental punishment should federal authorities impose same.

establishment and working of mills and all kinds of metallurgical works the regulations of the common law and, as regards taxes, by those of the

re remains exempt from taxes that part of the tunnels situated outside of nese are destined exclusively for the ventilating, draining, and extracting not proceed from the said tunnels.

SECTION V.—TRANSITORY PROVISIONS.

lenouncements of mines or surplus ground (*demasías*) which are in pro- law goes into force shall be continued and substantiated and shall be decided rovisions of the same.

ART. 2. The surplus ground or open spaces existing between neighboring mining properties and which have not been denounced when this law takes effect shall correspond and shall be given to the first party who applies for the same.

ART. 3. The contracts for the exploration and working of mining zones made with the department of state and expedition of development, colonization, and industry which are in force when this law takes effect, and in virtue of which the concessionaires are complying with the respective stipulations, shall remain in force for the whole time of their duration if the concessionaires so desire. The concessionaire can, however, within a year's time, counted from the date this law goes into force, choose the provisions of the new law, and as soon as he makes declaration to this effect before the department he shall be relieved by the same from the obligations which said contracts imposed on him and shall receive again the corresponding deposit. Remaining subject to this law and its regulations only, he shall acquire and conserve perpetually his mining concessions as long as payment is made of the federal property tax.

ART. 4. Existing mining properties which are being worked or are held by special permit (*amparo*) when this law goes into force, notwithstanding that they are not in accordance with the same, shall remain in subsistence, and the mines shall retain their fields with whatever measures they may have, though these be different from those now established.

As regards the tax, however, the unit mentioned in article 16 of this law shall serve as a basis.

The owners, however, can ask for a rectification of the concession and for a new property title.

ART. 5. The contracts for furnishing money to the miner ("avio") and all those relating to mining business which are in existence when this law takes effect shall be governed by their respective stipulations and, as regards points which may have been omitted, by the mining law which was in force at the time these contracts were made; but it shall be indispensable to the validity of the future operations which have their origin in these contracts that these be registered according to the dispositions of articles 24 and 25 of this law within a year's time counted from the date it takes effect.

Therefore, whenever a mining business is transferred, under whatever pretext, to a third owner, the latter shall be responsible for the obligations resulting from said contracts, supposing that any question in court should arise from the same.

ART. 6. The work which is being done in the mining field (*pertenencias*) of another owner in accordance with the law still in force can not be prosecuted after the date on which this present law takes effect, unless it have the consent of the owner of this field.

FINAL PROVISIONS.

ONLY ARTICLE. This law will go into force in the whole Republic on July 1, 1892, and from that date the mining code of November 22, 1884, and the circular orders and provisions relating to the same shall be abolished.

Article 10 of the law of June 6, 1887, shall also be abolished from the date of the promulgation of this law.

ALFREDO CHAVERO,
President of the House of Representatives.
V. DE CASTAÑEDA Y NÁJERA,
President of the Senate.
JOSÉ M. GAMBOA,
Secretary of the House of Representatives.
MARIANO BÁRCENA,
Secretary of the Senate.

rder that the same be printed, published, circulated, and given full com-

alace of the Executive Government of the Union, in Mexico, on the 4th
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PORFIRIO DIAZ.

Mining Property Tax.

[Inclosure 2 in Minister Ryan's report.]

accordance with the provisions of the articles relating to the new mining
established a federal property tax, which shall consist of two parts—one
be paid once only in stamps to be fixed to all titles of mining property and
ch has to be paid yearly for each one of the mining fields of which a grant

tax, the mining field (*pertenencia*), or unit of concession, shall be the one
icle 14 of the new mining law. Consequently all old and new mining
he Republic, whatever be their extent, shall be valued according to this

ns of mining fields that amount to one-half or more the tax shall be paid
hole fields, and nothing shall be paid for the fraction that is less than one-

n the unprorogable space of time, counted from the promulgation of this
of October of the present year, every owner or actual proprietor of mines,
may have, shall be obliged to present his documents to the office of the
regulations of this law may determine, so that the new stamps of owner-
may be fixed to the title and account may be taken, for the payment of the
n, of the number of mining fields (*pertenencias*) which form the property,
gister being opened for this purpose.

h in future the department of promotion will extend in accordance with
law have to carry the stamps corresponding to the same. These stamps
by the party receiving the grant and shall be in proportion to the mining
s) which the grant contains.

property stamps of the mines shall be of the value of $10, and have to be
of the property, one for each mining field of 10,000 square meters. The
article 1 is to be followed as regards the fractions.

have to be canceled by the office of the treasury authorized to receive the
xtended up to the 30th of June of the present year, the department of pro-
those belonging to the titles which are extended in accordance with the

the 1st of July of the present year all owners or proprietors of mines shall
the sum of $10 annually for each one of the fields (*pertenencias*) of which
mposed.

the tax shall be the same whatever is the nature of the substance which
the understanding that the mine has been acquired through denounce-
grant before the date on which the new mining law takes effect and that
acquired by grant and title in accordance with the new law.

es shall be exempt from the payment of the annual contribution on mining
tamps on the titles of the property which have been expressly freed from
cts made with the Executive Government in virtue of the authority given
and approved by the same. This exemption shall only last for the time
ontract, without opportunity for prorogation.

ART. 5. The yearly property tax on mines shall be paid in three advance payme
each fiscal year, this payment to be made during the first month of each one-thi
the year in the office of the treasury which the regulations of this law shall determ
which the taxpayers are obliged to go in order to make their payments without fu
of notification or any other requisite on which they might found delay or excuse.

ART. 6. Failure of presentation of the title which secures the possession of
within the time fixed in article 2 shall be punished by a fine equal to the amou
stamps which the title has to carry if the same be presented within the two months
the expiration of the time allowed. For every two months more that the presenta
layed the holder shall incur a fine equal to the amount of the stamps.

The concealment of the number of mining fields shall be punished with a fin
double the amount of the stamps which the title ought to have had for the conced
fields (*pertenencias*), to which shall be added double the amount of the yearly t
whole of the time that the same has not been paid. This shall not interfere with t
criminal responsibility to which the concealer is liable and to which he shall be su
due time.

Failure to pay the annual property tax within the first month of each one-th
the year shall cause the owner to incur a fine amounting to 50 per cent of the am
tax in case he pay during the second month.

If the payment be made in the third month, the fine shall be equal to the amo
tax. When once this last-named space of time has expired without the tax and th
lated fines being paid, the mining property shall be lost to the owner without reco
ever. The department of the treasury shall make the corresponding declaration
publish the same in the official paper, so that any other party may petition for the p

ART. 7. When the owner of the mine sells the same, he shall give the respec
for annotation in the register, and the bill of sale which is given shall carry the stan
according to the stamp tax, it should have.

ART. 8. In case it no longer suits any person or company to continue working
or mines which he or it may possess, the corresponding office of the treasury shall
in writing, so that the tax may be settled up to the date of the notification and the c
ing annotation be made in the register.

ALFREDO CHAVERO,
President of the House of Represen
V. DE CASTAÑEDA Y NÁJERA,
President of the
JUAN BRIBIESCA,
Secretary of the House of Represen
MARIANO BÁRCENA,
Secretary of the

Therefore, I order that the same be printed, published, circulated, and given
pliance.

Given in the palace of the Executive Government of the Union, in Mexico, c
day of June, 1892.

PORFIRIO

REGULATIONS FOR ADMINISTRATIVE PROCEEDINGS REGARDING MININ

[Inclosure 3 in Minister Ryan's report.]

CHAPTER I.—OF AGENTS.

ARTICLE 1. The special agents, dependent on the department of public wor
pointed by said department wherever judged necessary according to article 16 of t
any mining districts, shall receive and transmit all petitions for mining concessio

to them and shall exercise all the other functions marked out by the law .

f any doubt on the proper application of the law, the agents shall consult the lic works.

e time of making the appointment the jurisdiction of each agent shall be l the same, as well as any ulterior amendment thereof, published in the Government official organ.

ollowing requirements must be complied with in order to fill the position partment, viz: The applicant must be a Mexican citizen in the possession and he must fill no other Government position in the State, territory, or

each agent appointed at the several mining districts a number of substitutes l in proportion to the magnitude of business developed in that district.

es must possess the same qualifications as the agents themselves and will r during any temporary or permanent absence, as well as on all occasions liment may occur, the substitute being previously called upon by the re-

impediments in the way of agents shall be considered all such as for the forth in fractions I to IX and XII of article 1132 of the commercial code.

e of death or serious illness preventing the agent from notifying his substi- ll enter into the former's functions without loss of time, giving the depart- ereof through the mail or by telegraph where such exists.

ining agents shall give the public due notice as to their place of business thereto, which business shall not be interrupted, except on Sundays and

gents shall receive no other fees for their services than those set forth by f, and in any case not specified therein they shall consult with the depart- ount to be charged.

g the first ten days of each month the agent must forward to the depart- rks a detailed report of all petitions for mining concessions presented to evious month.

CHAPTER II.—OF EXPLORATIONS.

and every inhabitant of the Republic shall have the right to carry on ns on any section of national lands, due notice thereof being given the ctive zone as prescribed by law. The notification must be tendered in ng therein the limits of the zone to be explored.

l return the exploring party a copy of said notification, specifying thereon it was presented and warning the same that in the event of any digging should be done strictly in conformity with article 13 of the law and 14 of

e explorations are to be made on private property, the exploring party due permission from the owner of the property or his attorney, who, if l give the explorer a written statement specifying thereon the limits of the ored. This statement must be presented to the respective agent, who, after r entry in the record, shall return it to the exploring party, expressing the en presented.

e owner of the property or his representative should fail to grant the per- the exploring party should apply to the agent for same, stating at the same herefor. This petition shall be presented by the agent to the owner of the ing to protest within a fortnight, shall be understood to grant his consent. of the aforesaid fifteen days the agent shall adopt the proper proceedings,

fixing at the same time the amount of security which must be produced by th
party and a term of thirty days for presenting the same. The security once pr
agent shall give the explorer a written acknowledgment, expressing thereon the l
section to be explored.

ART. 13. During a term of three months, not to be prorogued, from the date
fication, permission, or administrative proceedings referred to in articles 10, 11
these regulations the agent shall admit of no other petition for the site of explorat
limits thereof, than those proceeding from the exploring party.

ART. 14. The exploring party or parties shall not carry on the work of explor
distance from towns or inhabited places nearer than 50 meters from the exterior
of public and private buildings and outhouses belonging thereto. The same di
be observed with regard to any public edifice or construction of any kind; but t
reduced to 30 meters from the lines bordering on highways, railroads, and canals.
gard to fortified places, no work of exploration shall be carried on within 1 kilo
oned from the outer lines of same.

CHAPTER III.—ON CONCESSIONS.

ART. 15. The petitions for concession of claims or extensions must be present
cate to the respective agent. These petitions shall clearly express the numbe
wanted, their situation on the ground, and the relative position of said ground wi
the corresponding municipality, fixing the most notable points of the locality for i
and specifying, at the same time, the mineral substance to be developed. Shoul
judge the petition as lacking clearness and accuracy on any point, he shall have
question the petitioner in order to obtain the same, all such information being a
duplicate petition and the record of the agency in the presence of said petitioner.
or inability on the part of the petitioner to afford the desired information shall be
in the way of registering the petition or sufficient cause for suspending the procee

ART. 16. The agent shall admit no other petition for the same site until the de
public works has given its final decision on the provision for each petition.

ART. 17. On presentation of a petition to the agent this functionary shall procee
the same in the presence of the petitioner, stating on the margin of both petitio
cate thereof, as well as in the official register duly authorized by the departmen
hour, and numerical order of presentation, the duplicate being then returned to th
The petition must be registered strictly in the order of dates and hour of day pre
ing no space in blank between the inscriptions.

ART. 18. In the event of two or more petitions for claims or extensions on th
being presented at the same time, the decision shall be cast by lots.

ART. 19. Within three days following the presentation of a petition for co
mining claims the agent shall appoint a titled expert or, if such is not to be found
surveyor to take the measurements and draw the plans of the claims and extensio
expressing clearly thereon the monuments marking said claims, as well as those
claims within an area of 100 meters all around. The agent may appoint the su
gested by the petitioner, provided said surveyor meet all the requirements prescri

ART. 20. Within the next eight days following the appointment referred to in th
article the surveyor must communicate with the respective agent, stating whether
the appointment or otherwise. If in the first case, he should also state that arrang
been concluded between himself and the petitioner as to the amount of fees to b
The agent shall thereupon make the proper entry in the respective provision.

At the request of the petitioner, the agent may extend, on one single occasion, t
period of eight days to another eight.

ART. 21. On making the entry referred to in the foregoing article the agent
period not exceeding sixty days for the presentation of drawings referred to in art

n explanatory report by the surveyor; the agent shall then proceed to draw
duplicate containing the following data:
ition, specifying in a clear and precise manner the name and dwelling of the
ne numerical order of the corresponding title.
ne, residence, and acceptance of the surveyor appointed.
ice that, within a period not to exceed four months from the date of said ex-
ponding title shall be finally substantiated at the respective agency.
e note shall be published in the bulletins fixed on the exterior of each agency,
rnishing the revenue stamps necessary for said publication. The notice shall
ulletin boards for a period of one month, due entry thereof being made in the
tle.
y of the notice shall be handed the petitioner, who, at his own expense and
forty days after the date of said notice, shall have the same published three
s in the official paper of the respective State, territory, or federal district,
issues must be delivered at the agency by the petitioner, in order to have the
o the corresponding title.
ne publication of the notice, as stated in the previous article, shall serve as
such as may deem themselves justified in protesting against the concession of
uestion.
n making the entry referred to in article 20 the agent shall hand the expert a
his appointment, which must close with warning that whosoever may resist
ecution of any work undertaken by the expert shall make himself liable to
ablished in article 904 of the penal code of the federal district or the law of the
.
ould the experts meet any opposition or positive resistance in the execution
article, they may call the local authorities to their assistance.
ne experts shall pay due attention to all remarks offered by the petitioner, as well
have opposed or may oppose the petition; but they shall reserve their views
r the written report referred to in article 21, the presentation of which, within
in stipulated, shall be for the sole account and responsibility of said surveyor,
mages that may spring from the nondelivery of said reports and maps.
pposition to the concession of a petition for any of the following reasons shall
d during the four months stipulated in clause 3 of article 21, viz:
lissent of the property-owner.
nvasion or trespass on adjacent claims or extensions.
rights or petition of the claims of extensions solicited.
n receipt of a protest to any petition the agent shall notify the petitioner, by
ten notice placed on the bulletin boards during three consecutive days, express-
names of the claimant and opponent respectively, as well as the numerical
responding title wherein due entry shall be made of said publication.
ve in the event of the petitioner notifying the agent that he desists from his
shall have the opponent's protest preserved on file until the surveyor's report
resented.
n presentation of these documents the agent shall proceed to call a meeting
o take place within the next fifteen days, publishing said summons on the
during three consecutive days and expressing the number of the provision,
arties, and date and time of day appointed for the meeting. At this meeting
gent's mission to bring about a compromise between the dissenting parties, in
egal complications. Of all these particulars due entry shall be made in the
sion.
the opposition should spring from the landowner and the expert's report
t indications of mineral deposits on the surface or any explorations in said
ent shall carry the administrative proceedings on the provision to a conclusion,

so that the department may issue the proper title in favor of the petitioner, since ing to articles 7 and 11 of the law, is either simply accountable for the undergro upon or otherwise leaves to the jurisdiction of the courts the extension and app the surface occupied by the miner. At the conclusion of these proceedings, wh duly placed on record, the agent shall notify the parties that they are at liberty to to the usual tribunals, according to article 20 of the law.

ART. 31. In any other of the opposition cases enumerated in article 26, sho be unsuccessful in bringing the parties to a compromise, he shall at once suspend a ceedings and deliver the respective provision to the petitioner, who, on his own and within a reasonable term appointed by the agency, must present it before th ing local judge of first instance.

ART. 32. If any reasonable opposition based on causes not provided for should be produced, the agent shall simply affix the same to the correspondi without suspending the proceedings on this account.

ART. 33. In the event of any opposition being made after the delivery of t maps and report, but before the expiration of the four months stipulated in clau 21, the proceedings referred to in articles 29 to 32 shall be continued without This is the only instance (aside from the remission to the tribunals) where th delay the substantiation of the provisions for thirty-five days after the said four vided the opposition be made within twenty days of the expiration of the abo four months.

ART. 34. If the four months referred to in article 26 should have transpired opposition being made, or in the event referred to in articles 30 and 32, or sh vision be returned by the tribunals with a judgment in favor of the petitioner strictly enjoined to forward to the department of public works, within the next following and under registered cover, copies of the provision and maps, unless should undertake to be the bearer of those documents, in which case the agen due notice thereof to the department.

ART. 35. The petitioner shall furnish the agency with the amount of reven quired for issuing the title. The stamps shall accompany the copies of provisi forwarded the department under registered cover and will be returned, through the petitioner if the department should disapprove the provision and consequen title. If the petitioner should so desire it, he may appoint the party who mus stamps at the department.

ART. 36. Any omission or neglect in presenting the petitions, furnishing t printed notices, payment of fees, or nonappearance at the meetings, and, in ge requirement mentioned in this chapter, imputable to the claimaint or the opp tively, shall imply, on the part of the former, the relinquishing of all claims an and, on the latter, that he desists from his opposition, and consequently ackn legality of the petitioner's claims.

ART. 37. After due consideration and approval of the provision by the de proper title shall be issued and forwarded to the agent, who must deliver th petitioner, with a copy of the maps duly stamped by the department of publi department furnishing that of finance with a detailed report on the concession g

Should the provision meet the disapproval of the department, the agent sha thereof, in order that any errors or deficiencies may be rectified within the term the department, provided said errors or deficiencies are not chargeable to the pet agent himself, in which case a different course shall be adopted in accordance w of the law.

CHAPTER IV.—GENERAL LAWS.

ART. 38. The work to be performed on the ground by the expert, according must conform with the scientific proceedings, in order to obtain the horizontal

laims and the angles made by same with the true meridian. To this end the
ermine the magnetic deviation of the compass if this instrument is used to
ction sides. The expert shall mark some of the vortices in the perimeter by
ent monuments on the ground, gathering all the necessary information be-
verify said measurements when desired.

hall designate upon the ground the spots where the monuments ought to be
t forth in article 41.

e maps of the respective claims must be neatly and accurately drawn on strong
ter preservation of said documents. The copies thereof may be produced on
he maps must be made in proportion to the object of the maps in decimals,
f the sides in meters, the direction of same with regard to the true meridian,
of the compass at the time of taking the observations, and, lastly, the area
hectares.

e selection and survey of the claims upon the ground confer no rights to the
ne, but shall serve simply to show the limits embraced in the mining conces-
d. For the final acquisition of the surface required by the petitioner for the
his mining concession or that covering the total area of his claims he must
ith the owner of the property by means of purchase or otherwise present an
e corresponding tribunal for the expropriation of said ground, as prescribed
he law.

e monuments to be fixed on the ground must meet the following require-

sition must be permanent, as they are intended to mark spots not to be
as the concession for the claims undergoes no modification. Their construc-
d, and they shall be kept in good repair.

ent number of them shall be erected in the most convenient places, so that
nument the preceding as well as the following one may easily be seen. Care
to distinguish the same in shape, color, or any other characteristic mark from
claims.

e concessionaires of mining claims shall not overstep the limits marked in
concessions (as prescribed by article 8 of the law), except in the event of
ting near their property, due petition for the extension thereof being pre-
l to the respective agent, who shall proceed in this case exactly in the same
ribed in these regulations for the concession of mining claims. The like
adopted in the substantiation of petitions for the ratification of claims.

e possession of a legal concession is indispensable for the operation or de-
mineral substances enumerated in article 3 of the law. Therefore, no man-
ing to the development of mines or deposits of said substances, whether on
derground, shall be allowed without the same being protected by means of
to duly registered.

petitions of concession for the development of any substance not enumer-
of the law shall be rejected, the development of said substance according
same law being the exclusive right of the landholder.

compliance with clause 4 of article 12 of the law, a petition for the cor-
e accompanied by a horizontal projection and profile of the adit, reduced to
cimal scale, and all other particulars that may be deemed pertinent thereto,
d to the respective agent. Said agent shall forward to the department the
tition and maps, together with his report on the subject.

ent, on receipt of these documents and all further information that may be
y, shall proceed to render its decision.

e owner of mining claims who should be refused the consent of the party
der the legal service shall present to the department (in compliance with

clause 19 of article 12 of the law) the corresponding protest in the form of a petition embracing all the necessary information on the subject.

The department, in conformity with the agent's report thereon and previous hearing granted the dissenting party or his attorney, shall render its decision within the period previously established for that purpose.

ART. 47. If the petitioner or the party who ought to render the service referred to in clause 19 of article 12 of the law should deem the department's judgment unfavorable to his legal rights and interests, he shall be at liberty to appeal from this decision to that of the respective judge, provided said appeal be made within two months from the date of the administrative decision.

ART. 48. In places within the Republic not embraced in the jurisdiction of a mining agent the petition for concessions, as well as the notices and concessions themselves, shall be presented to the postmaster of the locality, who shall file said documents, expressing thereon the date and time of day presented, and shall notify the department of public works through the mail and by wire where such means are obtainable.

ART. 49. The postmaster shall receive and file the petitions for concessions or the concessions themselves only in such cases where his residence lies beyond the jurisdiction of any mining agent.

ART. 50. The department of public works shall publish in the Diario Oficial, the federal official paper, every six months, the number of titles issued during that period.

ART. 51. The special book referred to in article 25 of the law shall be kept by such parties as are designated in article 18 of the commercial code, in the manner prescribed for in said code, chapter I, title II, book I.

ART. 52. It is the right of every individual to inscribe his titles for future concessions or actual property in the commercial registers, as sanctioned by article 36 of the commercial code, in such cases where the proper register is not kept.

ART. 53. It is compulsory for all mining corporations, as well as for the creditors thereof, to register all their transactions, as stipulated in articles 25 of the law and 5 of the by-laws.

ART. 54. All mining corporations are obliged to register the location of their mining claims, as well as the residence or residences of the company, at the department or judicial district.

ART. 55. If, through the extension of claims or other causes, any doubts should arise regarding the place where the registering should be effected, in accordance with the previous article, the department of public works shall render its decision thereon, communicating the same to that of finance.

CHAPTER V.—BY-LAWS.

ART. 1. The agents shall receive in the strictest numerical order, as per inventory thereof, all the provisions found in the present mining deputations or offices in place of same, on taking possession of them, and all provisions pending resolution shall be given due course, as prescribed in article I, title V, of the law.

ART. 2. All claims in the course of publication shall be placed on the bulletin boards after the agent has duly complied with the prescription expressed in article 21, said notice being again published in the official paper referred to in the last-mentioned article.

ART. 3. When the provisions of denouncement have been duly advertised, though the appointment of the expert should be still pending, the agent shall proceed exactly as in the case of a new petition for concession, without making a new entry in the register.

ART. 4. With regard to provisions where the surveyor has been appointed but has not as yet presented the maps and report, the agent shall proceed in like manner as in the case of new petitions, without making a new entry in the register.

ART. 5. With regard to provisions where the maps and report have been duly presented, the agent shall proceed to draw a note in duplicate containing the following:

(1) Copy of the petition, clearly expressing thereon name and residence of the petitioner and numerical order of the corresponding document.

rt's report.
at a term not to exceed two months from the date of said note will be allowed
tion of the corresponding provision at the agency.
ie event of provisions on denouncement, where any opposition should have
elivery of the maps and report, the agent shall proceed in accordance with
required, as prescribed in articles 28 to 32.
regard to provisions where any opposition may have been produced, the
l report being delivered, or where the opposition takes place within the two
in article 5 of these by-laws, the proceedings shall be analogous to those
2, the agencies having the right to the thirty-five days' extension granted in

same proceedings (as in articles 27 to 32) shall be adopted with regard to
oing the twenty days' probation expressed in article 78 of the mining code
1884. The agents, in their administrative capacity, can not render their
me manner and spirit as the corresponding tribunal.
ie expiration of the two months referred to in article 5 of these by-laws, or
ided for in article 34, the agents shall proceed in conformity with the pre-
article.
this one occasion the three days stipulated in article 19 shall begin to count
t the agent shall announce that the office and business pertaining thereto
ublic.
this be printed, published, and circulated for the fulfillment thereof.
palace of the executive power of the Union, Mexico, June 25, 1892.

PORFIRIO DIAZ.

IFF FOR THE PAYMENT OF FEES TO THE MINING AGENTS.

[Inclosure 4 in Minister Ryan's report.]

scriptions in the notice or in the concession of explorations referred to in
1 of the "regulations or legal proceedings regarding mining" and the cor-
in the records, $1.
roceedings on each concession of exploration referred to in article 12 of
nd entry thereof, $2.
tering each petition of mining concession, or extension thereof, or rectifica-
l entry in the records, $1.
ublications, memorials, and notes on provisions, at the rate of 20 cents for
fraction thereof, besides 10 cents for the title-page covering the documents

ranscription, checking, and legalization of testimonies, certificates, and other
e of $1 for each one hundred lines or fraction thereof. For the search of a
other document from the archives, $1. When the solicitor can not furnish
the subject and documents of over a year's date must be searched, $1 for
evised.
kilometer traversed in any direction for the prosecution of any transaction
th his office, 25 cents.
inations of any kind, whether on the interior or exterior, $5.
ections, visits, or examinations of underground works, $5 for every 100
or fraction thereof and $5 for the corresponding report.
ppearance at meetings not exceeding an hour in duration $3, and $1 more
tra or fraction thereof.

FERNÁNDEZ LEAL.

ne 25, 1892.

COMMERCE AND INDUSTRIES OF BELGIUM.

REPORT BY CONSUL LINCOLN, OF ANTWERP.

From the annual report for the year 1891 just published by the board of trade of this city I am enabled to make the following report concerning the industries and commerce of Belgium:

FOREIGN COMMERCE.

The official statistics of the commercial movement of Belgium with foreign countries shows an increase in imports of 9 per cent and an increase in exports of 6 per cent over 1890. The total imports were 1,547,000,000 francs and the total exports 1,312,000,000 francs.

Among the most important increases in imports must be noted that of wheat and great barley, the importations of these products amounting to 106,000,000 francs. This increase is due to the excessively bad crops which have prevailed throughout central Europe.

There has been a large increase in the exportation of arms, locomotives, engines, and carriages for steam railways and tramways.

The maritime movement shows the entry of 7,403 ships whose total tonnage was 6,126,920 tons, against 7,395 ships in 1890 whose total tonnage was 5,774,672 tons. The departures were 7,393 ships whose total tonnage was 6,044,985 tons, against 7,382 ships in 1890 whose total tonnage was 5,800,732 tons.

AGRICULTURE.

The agricultural report is most unsatisfactory. The country has suffered seriously through the bad crops. Wheat, rye, barley, and great barley fell far below the average crop per hectare, while oats only yielded an average crop.

INDUSTRIES.

Breweries.—In 1891 the total number of breweries in operation in Belgium was 2,832, an increase of 46 over the preceding year. The total consumption of beer in this country was estimated at over 1,000,000,000 liters. The importation of German and English beers has decreased from 61,371 hectoliters in 1889 and 55,286 hectoliters in 1890 to 52,973 hectoliters in 1891, thus showing that the art of brewing foreign beers has largely developed in this country. The native beers are slowly losing ground in public favor and giving way to German-brewed beers, although some of the native beers are very good and very cheap. The exportations were insignificant, amounting to about 6,000 or 7,000 hectoliters only. In the province of Antwerp 283 breweries were in operation, 2 more than in the preceding year. The internal-revenue tax on beer yielded 14,905,554.71 francs, or 130,078.34 francs less than in 1890, showing that, although more breweries were in operation, less beer was brewed.

t Niel, on the Rupel, 700 men are employed in the brick-annual production is estimated at 40,000,000 bricks, 10,000,-and 4,000,000 floor tiles. These are exported to nearly all orld. The wages paid to the workmen vary from 1.50 to 2 ı.

: production of coal in this country was 19,865,345 tons, 960 tons in 1890.

—During the year 1891 the diamond trade was extremely ıope for a renewal of business activity was unrealized. With f some orders from the United States executed by a few firms :uliar facilities, business was extremely difficult—so much so ıe diamond-cutting establishments remained inactive during t of the year. Work being so little in demand, many cutters d their trade, while some have started business on their own ncreasing the competition. This has caused a fall in the amonds. The rough diamond, with the exception of slight s remained at about the same price. On the whole, the out-amond industry and commerce is dark, and more especially n general remains quiet. The amount of exportations to the n 1891 was $511,054, against $403,862 in 1890, an increase

—There were 264 distilleries in operation during the year nce of Antwerp participating to the extent of more than one-uantity of liquor produced with 11 distilleries engaged. In ›rtation of liquors amounted to 9,998 hectoliters, against and 20,778 in 1889, showing a steady diminution, which is a regrettable loss to the industrial, commercial, and maritime country. On the other hand, the importation of liquors has ›ly increased, the treasury having realized in duties 1,565,733 1,468,657 francs in 1890. The largest increase in importa- from France. The internal revenue on domestic liquors treasury 37,315,778 francs.

factories.—Although the sale of rice starch has been very ices have been unremunerative. Broken rice, the raw mate- the manufacture of rice starch, was relatively dear, and, by sharp competition in the manufactured article, the price of ıot keep up with the advance in price of the raw material. ance on starch having been raised from 14 francs to 18 francs ams, makes business with that country impossible; and the cturers, in order not to lose their French customers, will be blish factories in France.

–This industry is suffering from foreign competition, since llowed to enter free of duty, while the same product from the taxed in Germany and the duty in France is actually pro-il within a few years raw rice, or rice only partially husked, was exported to Europe and was husked, pealed, and glazed in the Europea mills, from whence markets were found throughout Europe and in cou not producing rice. Of late years, however, this has totally changed, to the detriment of the European rice mills. The exporters at Ran having changed their factories, produce "white rice," called "S quality," which they sell by entire cargoes to the different ports of America, the Levant, and elsewhere. The exporter is therefore much independent, and thus realizes a higher price for the raw article. T most unfavorable, and it is feared that this competition will crush the ac and interests of European rice mills.

Shipbuilding.—The Société Cockerill constructed in 1892 the foll vessels: Two steamboats for the Kongo, 2 pontoons for Russia, 1 tu for Brazil, 1 tugboat for the Société Cockerill, 1 tugboat for Alge transport of 100 tons for the Kongo, 1 lighter for Brazil, 1 lighter f Société des Produits du Congo, 1 canal tugboat for the Willebroeck 1 tugboat for breaking ice for the city of Antwerp, and 1 steamboat f Katango Company (Kongo). The average number of workmen em was 319. The wages paid varied from 15 cents for apprentices to $1 men per diem.

Sugar-refining.—The total number of refineries in activity in 18 100, against 118 in 1890. The exportation of sugar to the United from Antwerp amounted to $2,240,948, an increase over 1890 of $1,59 The McKinley bill, in admitting free all sugar under No. 16 Dutch st in color, has increased the consumption of sugar by 363,000 tons. exported to the United States 331,000 tons.

Sulphur-refining.—One refinery only exists in this district, and in it imported 5,998 tons of crude sulphur from Sicily. The refined pro obtained by the sublimation of the crude Sicilian sulphur, and the manufactured by this establishment is preferred in the foreign m Nearly all the refined sulphur is exported.

Wool-combing.—In the wool-combing establishment at Hoboken b in 1891 was most difficult, a state of affairs brought about by the fa the supply of the raw material was far greater than the demand for the uct. The factory employed 700 men and women, to whom were paid amounting to 560,000 francs.

Cement and paper.—The manufacture of Portland cement and forms two of the most important industries of this province, but up present moment no report has come to hand concerning them.

The Société Niel-on-Rupel and North's Portland Cement Wo Beerse, both of this consular district, are continually shipping Portla ment to the United States. The shipments of Portland cement to the States in 1891 amounted to $243,792.46. Over 345 tons of paper we ported from Antwerp to the United States, and the total exportation this port of paper amounted to 17,182 tons. It is to be regretted t the moment no fuller report of these two important industries can tained.

.—The following table shows the development of the railroad
1835 to the end of 1891:

Year.	State.	Private.	Total.
	Kilometers.	*Kilometers.*	*Kilometers.*
	20	....	20
	334	32	366
	625	273	898
	749	981	1,730
	869	2,028	2,897
	2,662	1,341	4,003
	3,209	1,261	4,470
	3,250	1,276	4,526

NAVIGATION.

onal merchant service of Belgium on the 31st of December, 1891,
ships, of which 9 were sailing vessels and 46 steamers. The
was 78,799 tons.

GEORGE F. LINCOLN,
Consul.

STATES CONSULATE,
Antwerp, August 20, 1892.

BUTTER AND BUTTERINE IN JAPAN.

REPORT BY CONSUL SMITHERS, OF OSAKA AND HIOGO.

amount of butter imported into Hiogo during the year amounted
unds, valued at 5,531 silver yen,* and comes mainly from the
es and France. The total amount imported into the whole
unted to 173,253 pounds, valued at 53,109 silver yen, of which
ds were imported from the United States and 45,829 pounds
I fancy a quantity of that imported at Yokohama eventually
down here.

on to this a large quantity of fresh butter is manufactured here
and is preferred to that in tins, which, in turn, is used almost
ooking purposes. Of the latter the style of package used is the
can, ranging from 1 to 5 pounds, and the ruling quotation, as
m Messrs. Langfeldt & Co., of this port, is from 50 to 65 sen†

E. J. SMITHERS,
Consul.

STATES CONSULATE,
Osaka and Hiogo, August 6, 1892.

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*1 yen=69.9 cents.

†100 sen=1 yen.

COMMERCE OF ANTWERP.

REPORT BY CONSUL LINCOLN.

IMPORTS.

Coffee.—In 1891 there were imported into Antwerp 31,107,709 ki of coffee, or 591,783 bales and 435 casks, 17,422 bales of which were i from the United States. This amount shows a decrease from the i tions of 1890 of 177,848 bales and 255 casks.

Cocoa.—The total importation of cocoa was 18,779 bales, an over 1891 of 2,144 bales. Six hundred and eighty-five bales were i from New York, showing a falling off since 1880 of 921 bales, viz: there were imported from New York 1,706 bales; in 1890, 1,63 and in 1891, only 685 bales. The largest importation of cocoa w France, viz, 5,990 bales.

Cereals.—In 1891 cereals were imported as follows: Wheat, 18, hectoliters; rye, 1,341,089 hectoliters; barley, 2,052,570 hectoliter 1,486,819 hectoliters; maize, 2,539,402 hectoliters; total, 25,454, toliters. This is an increase of 4,500,000 hectoliters over 1890, an have been still greater had not the exportation of cereals from Rus prohibited.

Flour.—Of flour 506,908 sacks were imported in 1891, against sacks in 1890. There were 234,585 sacks imported from the Unite showing an increase over 1890 of 122,779 sacks.

Cotton.—The season of 1891 has not been of great import many large houses have preferred to operate in foreign markets inste home. The price of American cotton fell 20 per cent and that o cotton 10 per cent, making American middling cotton valued at 5 per 50 kilograms at Antwerp, and Oomra and Dhollerah at 43½ fr 50 kilograms. There were 340,319 bales imported into Antwerp i or 65,042 less than in 1890, or 50,000 bales less than in 1889. (340,319 bales, 84,281 came from the United States, 213,154 from In the balance from sundry European ports. The result of official com made between American and Indian cottons in the Madras Presi that the cultivation has greatly increased and that the fields are mu carefully looked after there than heretofore.

Hemp.—The total importation of hemp in 1891 was 31,578 bale of which were imported from New York and Boston. A steady in shown in the importation of this article from the United States, 1870, none; 1880, 25 bales; 1889, 154 bales; 1890, 1,912 bales 1,981 bales.

Honey.—The importation of honey from the United States shows increase since 1875, viz: In 1875, 54 tierces; 1880, 882 tierces 1,739 tierces; 1891, 1,924 tierces. The total importation in 1

against 4,006 tierces for the preceding year. The largest im-
s from New York and the next largest from France (798 tierces).
ows with 736 tierces, England with 411 tierces, and Holland
ces. The total quantity was 1,111,028 kilograms, 561,597 kilo-
ch were reëxported.

The table of importations shows 2,214,000 horns for 1891,
,000 in 1890, nearly all of which were from South America.
btained the highest price were the Rio Grande, ranging from
cs for 50 to 60 kilograms.

The year 1891 has been a most unfavorable one for the importa-
, the prices having diminished steadily. It is supposed that
t about by the bad state of affairs in the tanning industries in
h has continued now for some years. The result has been that
Havre, and Liverpool there was a total stock of 725,000 hides
against only 300,000 in December, 1890. The total importa-
erp was: Salted hides, 1,310,222; dry hides, 127,523; total,
des, not including calf or buffalo hides. This is an increase
63,924 hides. In 1891 there were 152,457 hides reëxported,
28 in 1890, being a diminution of 188,671. Hence the in-
ck at Antwerp at the end of the year was 250,727 hides,
76 at the same date in 1890. The amount of exportation of
United States in 1891 was $199,106.95, against $137,032.08 in
ease of $62,074.81.

usiness in lard was very difficult during the entire year of 1891.
ce of maize during the beginning of the year is said to be the
that account the American farmers were obliged to force their
market. There were heavy fluctuations throughout the year,
ever profits were made in the early part of the year were lost
s the close. The quantity imported was 252,868 cases in 1891,
23 in 1890. With the exception of 50 cases, the entire im-
s from the United States.

.—"From bad to worse" is the state of affairs reported by the
commerce regarding petroleum. The sailing ships have given
to the tank steamer, and it is since this radical change that the
ost in its entirety, has gone over into the hands of powerful
There were imported 536,354 tin cases from the United
ng a decrease since 1889, for in 1889 there were imported
ases and 718,497 in 1890.

he total importations of rice in 1891 were 738,356 bales,
65 in 1890, an increase of 16,891 bales. The largest importa-
202 bales from Akyab. There is a marked difference between
on of 1891 and of 1888, when 1,031,165 bales were imported.
000 kilograms were reëxported, of which 97,000 went to the
s.

Resin.—The total importation was 50,882 barrels, of which 48,491 barrels came from the United States. This is a very slight increase over 1890.

Salt provisions.—The total importation was 88,684 cases and 1,291 barrels. Of the total 83,936 cases and barrels were from the United States.

Oleaginous seeds.—There were 217,055 hectoliters of linseed imported from the United States in 1891, this being next to the largest importation. The largest was 696,239 hectoliters from the East Indies. The total importation was 1,340,193 hectoliters. The trade in the other seeds of a like kind was far less important.

Turpentine.—There were imported from the United States 20,127 barrels, out of a total importation of 20,214 barrels.

Tobacco.—During the year 1891 the following American tobaccos were imported: Kentucky, 10,419 hogsheads; Virginia, 871 hogsheads; Mason County, 1,090 hogsheads; Maryland and Ohio, 126 hogsheads; total, 12,506 hogsheads. The total importation was 13,236 hogsheads and 26,862 cases. Business has been fairly animated throughout the year.

Building lumber.—From Florida there were imported 22,512 cubic meters of lumber, all pitch pine; from the other States and Canada, 1,893 cubic meters. The total importation was 346,765 cubic meters.

Cabinet woods.—The importation of wood for furniture and decorative purposes was unimportant so far as the United States are concerned—1,990 blocks of walnut, 117 blocks of American poplar, and 112 blocks of hickory. The total importation was 1,582,579 kilograms, 705,147 kilograms of which were reëxported.

EXPORTS.

Among the most important exports from this district is that of extract of meat. The general depot of the Liebig Extract of Meat Company (limited) and also the European agency for the "Kemmerich" extract of meat are both at Antwerp. The value of the shipments of this product from Antwerp to the United States in 1891 was $113,720.88.

Large quantities of bed feathers and rags are shipped from this port to the United States annually, and phosphates, horsehair, human hair, flax, chicory, drugs, religious books (Roman Catholic), gin, and lead are among the regular shipments to the United States.

EMIGRATION.

The total emigration from the port of Antwerp was 48,788, or 12,135 more than in 1890. Of this number 36,108 were bound for New York, 7,152 for Philadelphia, and 139 for New Orleans. The total emigration to the United States amounted to 43,399 souls.

NAVIGATION.

The national merchant service of the port of Antwerp comprised 46 ships, of which 41 were steamers and 5 sailing vessels. The total tonnage was 68,856 tons, against 74,675 tons in 1890, the decrease being caused by the sale of 5 steamers and 2 sailing vessels.

tonnage arriving at the port of Antwerp for the year 1891 was
ns. This is greater than either Bordeaux, Bremen, Havre, or
Hamburg figures next with a tonnage of 5,762,369 tons.

GEO. F. LINCOLN,
Consul.

STATES CONSULATE,
Antwerp, August 20, 1892.

IMPORTS AND EXPORTS OF SPAIN.

REPORT BY CONSUL TURNER, OF CADIZ.

the value of imports into and exports from Spain for the first six months of 1890.

IMPORTS.

Classes.	1890.	1891.	1892.
	Pesetas.	*Pesetas.*	*Pesetas.*
lassware, stones, etc.)	37,938,574	43,148,040	39,214,629
manufactures)	21,159,698	17,172,307	15,947,861
licines, etc.)	27,781,871	28,942,321	25,772,748
manufactures)	47,906,447	65,382,505	61,728,824
fibers and manufactures)	16,375,206	16,656,695	17,396,735
anufactures)	14,771,238	16,003,000	20,260,813
nufactures)	9,186,055	8,578,772	9,503,091
manufactures)	4,798,625	4,907,423	5,234,905
manufactures)	23,419,515	21,753,740	23,139,407
nd their products)	21,275,731	25,077,556	20,229,668
y, vessels, etc.)	27,234,391	24,110,573	20,480,223
d breadstuffs)	107,153,602	95,815,016	82,536,196
	3,340,498	3,566,377	3,102,789
	39,162,328	35,545,558	56,515,907
	401,503,779	406,659,883	410,063,796

EXPORTS.

lassware, stone, etc.)	51,616,159	41,293,727	42,621,900
manufactures)	64,748,433	56,465,113	84,631,793
licines, etc.)	13,200,318	13,606,090	14,367,128
manufactures)	10,385,241	9,355,585	17,093,795
fibers and manufactures)	1,097,157	1,731,663	2,617,333
anufactures)	6,557,254	4,272,784	5,636,087
anufactures)	1,295,609	1,596,134	3,103,729
manufactures)	5,419,719	4,176,265	5,966,950
manufactures)	16,388,798	18,293,730	17,954,620
nd their products)	22,984,501	23,283,048	19,810,371
y, vessels, etc.)	345,815	591,833	246,113
d breadstuffs)	189,807,231	198,781,277	165,631,847
	1,888,717	1,036,751	1,625,247
	385,734,952	374,484,000	381,306,913

R. W. TURNER,
Consul.

STATES CONSULATE,
Cadiz, August 25, 1892.

AMSTERDAM-RHINE CANAL.

REPORT BY CONSUL SCHLEIER, OF AMSTERDAM.

In my annual report on the trade and navigation of Amsterdam for the year 1891 I briefly mentioned the hopes of the early completion of the Merwede Canal, which gives a more direct, wider, and deeper water way from this city to the Rhine than before; and, being of so great importance to the commercial interest of this city, its completion and formal opening deserves more than a passing notice. I therefore submit herewith a very brief sketch of the struggle this great seaport had to contend with to finally gain this link in the communication between Amsterdam and the Rhenish provinces of Germany.

The opening of this so-called Merwede Canal took place on the 4th of August, 1892, and was attended with considerable ceremony, the Queen Regent and her daughter, the young Queen Wilhelmina, being present and declaring the canal formally opened.

The water communication between this city and the Rhine was, up to the present, of an entirely insufficient character. The so-called "Cologne water way," forming that part of the connection between Amsterdam and Utrecht, is narrow, very crooked, shallow, and impeded by no less than seven locks in the short distance between the two cities, as well as by numerous railway and other bridges.

The little River Vecht, forming a part of the water way, is subject to considerable variation of depth, and in summer and autumn the locks at Utrecht often did not admit vessels drawing more than about 5 feet.

The canal communication between Vreeswyk, on the River Leck, and Gorinchem, on the Waal, was also quite unadapted to the present necessities of river transport. Moreover, the whole of this water way from Amsterdam to Gorinchem was more or less under private control and subject to heavy bridge money and tolls, so that it is hardly necessary to point out that water communication between Amsterdam and the Rhine was up to now in every respect greatly retarded in comparison with the free water highway between Rotterdam, Dordrecht, and Germany.

It has cost the city of Amsterdam more than twenty years of struggle against all kinds of difficulties and opposing influences as well to get rid of this state of affairs; and even now the citizens, though pleased with the great improvement brought about by the new canal, look back with feelings of disappointment and bitterness to the impediments which, as they believe, were placed in their way by the local patriotism of sister cities and by alleged considerations of national defense, through which the plans cherished by Amsterdam were nullified and a route imposed on the new canal which disappointed most of those who had worked their hardest to obtain it.

Amsterdam pressed for a short, cheap, and direct route to the upper Waal by means of a canal along the River Eem to Amersfoort, thence through ed Gelderland valley to the Grebbe, below Arnhem, and then ough the Betuwe to Doodewaard, on the Waal. The advantages oy this route were: First, the equalization of the distance with Rotterdam; second, the avoidance of the shallows in the lower Waal and the Leck; third, cheap construction through a large cultivated land which could only be greatly benefited by the con- f the canal.

was great opposition, however, in the States General on various n which local influences probably played a considerable part, and ilitary engineers of the country also reported in favor of a route ld run into the Leck and Waal below, instead of above, Utrecht. , the present route was adopted, after a hard fight, against the he city chiefly concerned.

iginal plan contemplated using the River Vecht as part of the but fortunately this idea was abandoned during the construction al, and a new, nearly straight, cut from Amsterdam to Utrecht vyk, on the Leck, was decided upon and carried out.

nal, as now completed and opened as far as Vreeswyk, is of greatly lirection and dimensions. It has a width at the bottom of 20 l a minimum depth of 3.1 meters near the locks; and in other re any accumulation of vessels is to be expected the width is con- nore, reaching to 40 meters. The locks are 120 meters long, 12 e in the gates, and 25 meters wide in the lock itself.

lway bridges, with one exception, are fixed bridges with a mini- nt of 6.5 meters from the water line to the under part of the all canal vessels can lower their masts, derricks, and smokestacks.

ngth of the canal, from the commercial wharf at Amsterdam to on the Leck, is 48½ kilometers (over 30 miles) and the total Gorinchem 71.3 kilometers (over 44 miles).

n Amsterdam and Vreeswyk there are three locks: one at the en- he canal at Zeeburg, on the Zuyder Zee, east of the city; the Jtrecht, where the canal enters the so-called "Vaartsche Rhine;" nird at Vreeswyk, communicating with the River Leck. After e river a lock is passed at Vianen, another just above Gorinchem, the lock communicating with the River Waal. There are there- six locks between Amsterdam and Gorinchem, but, for reasons to ude below, the first portion of the canal, *i. e.*, that which has pened, is practically of the most importance, and will no doubt become the great water way from Amsterdam to the Rhine.

ver Leck can not at present be compared with the Waal as regards purposes, principally on account of its shallowness above Vrees- of late years the conviction has gained ground that this obstacle overcome than formerly supposed, and that the bed of the Leck comparatively moderate cost be so far deepened as to endure an pth of at least 2 meters at the lowest stage of the river. In this case Amsterdam would practically be put on an equal footing with Rotte dam as regards distance from Cologne, and, as the new canal is free of toll the obstacles which previously existed to the transit water traffic would nearly removed.

How great these obstacles were may be seen from the following figure Time required to pass through the new canal from Amsterdam to Vreeswy 7 hours; time required on the old route, 16 to 18 hours; length of vess available on new canal, 80 meters; length of vessels available on old rout 50 meters; available draft on new canal, 2.6 meters; available draft old route, 1.5 meters; width of the new canal at bottom, 20 meters; wid of the old route at bottom, 13 meters. And last but not least the tolls. the old route a small vessel of 200 tons paid 35 florins on the trip back a forward, and a vessel of twice that size paid 50 florins, whether laden or ballast. The new route is entirely free.

However great the disappointment of the city of Amsterdam at not g ting what she considered to be her due, and however just her complaint, can not be denied that the present improvement is a very great one; a there is but little doubt that every advantage will be taken of it, and th Amsterdam will gradually attain that position in the transit trade which h situation justifies, and from which she has nearly been shut out as far as land water traffic is concerned. Already many enterprises connected w the new canal are spoken of, and doubtless many will be carried out, to great benefit of the city and especially of its working population.

It is, of course, a drawback, as compared with the river navigation fr Rotterdam, that the canal will in the winter months be sooner closed ice than the river; on the other hand, the navigation on the canal itself the safer and the more regular.

The cost of water transportation has of late years rapidly decreased the Rhine, in consequence of improved conditions of the river and the co struction of vessels of much larger carrying capacity than formerly. In t respect the new canal is an immense improvement on the old one, since will allow the use of vessels fully four times as large as those which co safely pass the older route, which I need hardly say is now complet abandoned.

T. M. SCHLEIER,
Consul.

UNITED STATES CONSULATE,
Amsterdam, August 20, 1892.

THE RHINE VINTAGE.

REPORT BY COMMERCIAL AGENT SMITH, OF MAYENCE

With reference to the forthcoming vintage on the Rhine this year, I ha to report that in the matter of quality it will be excellent, but very disa pointing in quantity. The wines realized, it is expected, will comp quality with those of the very best years, such as those of 1865 or instance; but in quantity there will probably be but one-fifth ull vintage. This poor showing as to quantity is very vexing -growers of the Rhine, who for many years have been patiently a vintage No. 1 in quality; and now, when at last such a wine view, its value is marred by the scantiness of the quantity pro-

Moselle there is a better outlook for quantity than on the Rhine,

age will take place at the end of October or beginning of No- t the quality of the grapes is already largely fixed, and it is a w mainly of quantity, which will be very small under any cir-

JAMES H. SMITH,
Commercial Agent.

STATES COMMERCIAL AGENCY,
Mayence, September 21, 1892.

GERMAN DUTIES ON AMERICAN PORK.

RANSMITTED BY CONSUL-GENERAL EDWARDS, OF BERLIN.

[Translation.—From the Hanover Courier of July 26, 1892.]

the striking variations in the collection of duty on American bacon the Königs- Trade, in its annual report, complains as follows:

ion in the importation of American pork is, unfortunately, greatly hindered for the other German customs ports, as compared with the German free ports, by ns regulations. For the thick coating of salt, with which American pork is United States before being packed and shipped for the purpose of better pro- at against the damaging influences of sea transport, in the net appraisement of rman customs ports the tax is estimated at the high tariff rates fixed for pork, ng importers in the German free ports simply remove the salt before the pork ntier, and therefore pay the duty on the pork alone net. The taxation of this increases the pork duty of 20 marks from 1 to 1½ marks. Our appeal to the ance requesting him to obtain a decision of the federal council that, in connec- rican pork, the salt found in the cases may, at the request of the importer, be er official supervision and then not taken into account in estimating the duties ely received an adverse answer, because the mode of procedure of customs of- ms ports is fixed by the provision of section 29, paragraph 5, of the union cus- ly 1, 1869."

of procedure of the customs department here brings to mind somewhat the customs curiosities. Pure salt, suitable for human consumption, when imported marks per double centner; the impure salt used only for packing, which is n consumption, must in the ports of the customs territory pay duty as pork at marks per double centner. If the individual state customs officials can not fficulty, relief must very soon be given through change or completion of the ued by the federal council in regard to tare.

CUSTOMS RECEIPTS OF SPAIN.

REPORT BY CONSUL TURNER, OF CADIZ.

Table showing receipts of the custom-houses of Spain from all sources for the fiscal years 1889-'90, 1890-'91, 1891-'92.

Sources.	1889-'90.	1890-'91.	1891-'92.
	Pesetas.	*Pesetas.*	*Pesetas.*
Duties from importation	90,011,655	92,416,807	92,852,590
Duties from exportation	4,883	680	136,205
Imposts of loading	4,460,418	4,618,324	4,610,398
Imposts of unloading	3,473,290	3,672,419	3,325,099
Imposts of passengers	298,168	210,652	208,930
Minor duties	702,913	688,654	651,993
Quarantine duties	39,962	110,104	51,715
Fines and abandoned merchandise	648,035	623,934	551,968
Imposts upon commercial paper	5,648	11,414	15,976
Imposts upon colonial products	23,361,110	21,758,083	18,073,966
Extraordinary duties upon importation of alcohols	2,513,033	2,481,557	1,689,428
Duties of materials for public works	2,274,856	4,865,753	8,719,245
Any other sources	9,876	2,047	6,534
Total	127,803,847	131,460,428	130,894,047
Amount calculated in the budget	135,545,000	130,395,000	130,395,000
Excess		1,065,428	499,047
Deficit	7,741,153		

Table showing duties of all kinds collected on the articles named for the fiscal years 1889-'90, 1890-'91, 1891-'92.

Articles.	1889-'90.	1890-'91.	1891-'92.
	Pesetas.	*Pesetas.*	*Pesetas.*
Brandy	11,811,500	10,627,032	6,772,292
Sugar	12,002,308	11,072,507	10,819,881
Codfish	8,543,419	8,441,215	8,147,174
Cocoa	5,285,499	4,420,684	4,443,213
Coffee	3,004,892	3,417,093	3,009,166
Wheat flour	2,407,702	1,337,022	98,722
Petroleum	11,599,596	13,241,918	12,765,460
Wheat	8,462,658	11,070,167	7,455,522
Other cereals	2,825,577	3,464,805	1,998,051
Total	65,943,151	67,092,443	55,509,481
All other articles	61,860,696	64,367,985	75,384,566
Grand total	127,803,847	131,460,428	130,894,047

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, August 25, 1892.

CONSULAR REPORTS

ON

ERCE, MANUFACTURES, ETC.

o. 147.—DECEMBER, 1892.

CHINESE CURIOS.

REPORT BY CONSUL BEDLOE, OF AMOY.

ctors in the United States are aware of the wealth of China in
ddities and curios. There is an army of connoisseurs among
golians, but they display little or no energy in accumulating
If they see something that strikes their fancy and they are
the price, they take it without a murmur. If it be 10 cents
they regard as a fair limit, they walk off in high dudgeon. As
e, the curio market has few ups and downs. Nevertheless, it
ense business the year through. The best patrons are natu-
natives. Then come European collectors and experts. Ship
missionaries are also buyers of considerable importance. Last
the collectors of the United States.

hardly an artistic taste but can be gratified in the Flowery
A full description of the art treasures to be seen in its great
ill many volumes. A résumé may be of interest to both the
the reading public.

ARMS AND ARMOR.

rmer there are 1,100 types and 1,200 of the latter. The best
in this line comes from Japan, and some admirable pieces are
Korean origin. The Chinese work is extremely variable in
haracter, also in price, and, strange to say, the oldest and rarest
sold at prices much below the charges for more modern and less
ments of warfare.

ve weapons there is remarkable variety. On the coast its soldiers
th the latest rifles, while in the far interior they employ the same
used by the vast hosts of Tamerlane and Zenghis Khan. Taking
s a whole, the student or collector can find in use to-day every

weapon that has been employed within its borders since the time of Confucius. In addition to this, the mandarins and high officials arm their retinues with conventional weapons representing different periods in the history of the nation. On account of the changes wrought by time, many of these martial instruments are so incongruous as to be positively funny. Thus, for example, the Mongolian Tartars did their fighting on horseback, and one of their most formidable arms was a pole to which was attached a hook edged on the inside like a reaper's sickle. With this they would pull a rider from his steed, wounding or killing him in the action, or would hamstring the horse at a single stroke. This pole hook is no longer used by the few cavalry squadrons of China, but is found carried by footmen in nearly all the retinues of the great nobles. It looks formidable, but when used by infantry against infantry would be about as serviceable as an Indian club fastened securely to the end of a broomstick.

A glance at a collection of these arms shows that military uniformity was almost unknown to the Chinese generals of the past, and that the armies were made up of divers elements, armed usually with such implements used in peaceful pursuits as could be used in war. A common weapon is a trident, tined and barbed exactly as are those employed by fishermen in spearing eels. Similar to this is a three-pronged hay fork. Of equally bucolic origin is a long pole to whose end is fastened the end of a scythe or sickle. The European mace is suggested by a long-handled, light-headed hammer similar to that with which Charles Martel is said to have won his quaint name. It is obvious that these four weapons are of harmless origin. The first was the favorite instrument of fishermen and the second, third, and fourth of agricultural people.

Of the five types described there are no fewer varieties. The poles are bamboo or solid wood. They are plain, carved, or decorated with mother-of-pearl, metal, or cord. The heads are copper, brass, iron, pewter, or steel. Sometimes they are silvered, sometimes bronzed, lacquered, or gilt. Handsome ones are the exception and not the rule. The average retainer of a high official carries an arm whose pole is of the commonest wood stained red and whose head is of the poorest kind of cast iron or impure pewter. Many of these ominous-looking implements of war would not stand a light blow, both head and pole breaking at a very slight shock.

I have never seen any lances. The deficiency is made up by a surplus of spears and halberds. Of these the designs are varied, running from light and efficient points and edges to grotesque and hideous shapes that would frighten more than they would hurt. At times the workmanship is admirable. A spear captured by the French from the Black Flags in Tonquin is 8 feet long. The shaft is of ironwood, round, polished, and varnished, and reënforced here and there by wrappings of fine copper wire, and at the upper hand is incrusted the distance of a foot with mother-of-pearl. The end is ferruled with a large copper band, in which is set the spearhead. This is made of fine steel 6 inches in length and triangular in cross section. One face is oved so as to allow a large amount of poison. These spears are great skill by the Chinese. Lee-Yu, a famous bandit, could through a man at 50 yards. In the Franco-Tonquin war a pow-se foot soldier drove his weapon entirely through two French 1. It is claimed that the finer and handsomer spears are not of orkmanship, but are made by Japanese, Korean, Anamite, and onsmiths. How true this is I am unable to determine.

erds there is great variety, ranging from the simple lochaber ax to the cumbrous and complicated masses of metal that were so the close of the age of chivalry. The oddest specimen was one ead of an ax blade on one side, had what appeared to be a ham- It would make a serviceable implement for driving picture nails ar the ceiling.

ery the Chinese have long been experts, especially those of Man- Se-Chuen. Their bows are of three types: the long bow, which et in length; the short bow, which is about 4 feet long; and the The strings are made of silk, of gut, or of very strong home- wrapped with fine silk in the middle. Bows are graded accord- pull, the standard being 100 catties (about 135 pounds). To he pull the bow properly strung is suspended from the middle and ng to the middle of the string until the latter is nearly an arrow's the bow. Famous bowmen use bows with heavier pulls, ranging 200 pounds, and one distinguished Robin Hood is said to have 00-catty bow (about 270 pounds). The bows vary greatly in construction, decoration, and finish. They are made of one or es of wood and are frequently inlaid or engraved until they are of art.

of mention are the tiger bows. These are extra large and heavy erally fastened to a framework near a path or road frequented by her large animals. It requires two men to set them, and they are that the moving of a cord stretched across the road disengages ng and sends the arrow on its way. The force is so great that equently comes out of the other side of the tiger, deer, or buffalo. uccess the arrow is usually double barbed and envenomed. On nd, opposite the island of Amoy, these tiger bows are in constant ually kill at least 50 of these big beasts.

pons named are much cheaper than corresponding ones in the es or Europe. The cheapest spears and halberds bring about 40 ows 25 cents. From these figures the prices run slowly upward. e poleax is easily had for $1, while weapons of the highest artistic nish can be secured for less than $5 each.

some stand of arms, containing poleaxes, spears, halberds, swords, s—two each—can be procured for about $25. A stand equally appearance, but made in imitation materials, can be had for that amount.

An American resident in Amoy was requested to execute a commission for a distinguished divine of the United States, a gentleman who, though a man of peace, has the finest, if not one of the best, collections of swords and other deadly weapons in the world. This led to the examination of several hundred rare and curious weapons sent him for inspection and approval. No two were alike of the lot selected, and not one that did not display rare skill on the part of the Chinese sword smith.

The handsomest of all is a general's saber about 4½ feet long, slightly Japanese in style, with an edge like a razor and a point that would extort admiration from an Italian bandit. Unlike our own, the thickest part of the blade is the center. This gives great weight to the weapon, joined to an appearance of great lightness. The scabbard is made of hard, tough wood, lacquered to represent black iron incrusted with mother-of-pearl. The hilt is of black iron molded in the form of a full-blown rose, the petals of which have been drilled with small holes and these filled with bright brass bars.

The most curious of the lot is the so-called warrior's two-bladed sword, from Ho-Nan. It is only about 2 feet long, and in the scabbard looks very like the sword bayonet of our own army. The scabbard is plain, but very neat, and covered with white shagreen (or shark skin) and trimmed with brass mountings. When you draw it the blade divides into two, each a facsimile of the other, double edged and spear pointed. The twin blades have a remarkable decoration made by drilling seven holes about an inch and a half in diameter and put in a zigzag line from hilt to point. These are filled with pure copper, which is ground down to form a smooth surface flush with the steel and polished to a mirror-like brightness. These seven stars, as they are called, are found in nearly all the martial weapons of Ho-Nan and are relics of the old astrologic faith that still prevails in many parts of China. Its hold is so strong that if the copper falls out of one of the sword holes it is accepted as a sure precursor of death, and the luckless wielder of the blade usually commits suicide to escape further trouble.

The short stabbing daggers, which find favor chiefly with pirates and revolutionists, form a strong contrast with the weapons described. They are generally so ugly that they would be ludicrous were it not for the purposes to which they are applied. I have one which looks like a queerly made ace of spades fastened into a wire-bound handle. To increase the artistic effect of the weapon, the armorer has hollowed out a shallow, spoon-shaped concave on either side of the blade and filled in with blood-red lacquer, the effect of which, when suddenly drawn from a black sheath, is very startling. Spades are not the only suit in the pack that is popular in the Mongolian mind. I have another weapon whose blade is a perfect ace of diamonds. All four sides are ground down to an almost concave edge, and the blade is made hideous by Chinese red lacquer work made to represent drops of blood and gouts of gore. Still another dagger is about the clumsiest affair of the kind I ever handled. The blade is a foot long, about 3 inches wide, and

thick. With its heavy brass hilt and gigantic guard it weighs
s. If set with a long handle it can be used as an ax. It is used
Black Flags and other celestial outlaws, who, in addition to
he ordinary manner, throw it with fatal precision. The ex-
onquin told me that during the late war he had known in-
ich the knives were thrown with such force that they would go
n's body and show 2 inches of bloody steel beyond his back.
of many of the instruments of death are finished with what we
ps.

dreadful looking weapon of all is the executioner's sword, used
eadsman of Amoy. It is of Manchoorian type, being long, al-
, very heavy, and keenly edged. It is used with one hand, and
d wound so as to give the executioner a powerful hold upon his
pon the blade near the hilt are Chinese characters recording the
in which it has taken active part. My interpreter told me that
less than one hundred and ninety-three human lives which it
t of this world. This record enhances its value. A new sword
kind could be bought for $10 or $12, but for this sword, with
istory, the thrifty broker wanted $200 cash. He evidently
although it came high, I must have it and accordingly raised
Ie was a very heartbroken creature when I declined it with

f caution as to these Oriental swords and daggers: Very many
poisoned, so that a mere scratch will cause death. The venom
by steeping the blade in decayed human blood, and is one of
known to physiological science.

w on for the next five years will be the golden opportunity for
to secure the finest specimens of swords. The market has never
ined and never will again such an assortment as regards either
omy, historic value, variety, or workmanship. The reasons are
h. The opening of China and Japan to the outside world and
tion of firearms was a fatal blow to the sword-smiths' industry.
vent the makers of swords formed the wealthiest and most pow-
the East. The mediæval rivalry between Milan, Toledo, and
as insignificant alongside of that of the great armorers of the
mpetition caused experiments in metallurgy, alloying, forging,
ng that produced results of high value and disclosed mechanical
workers in steel that are unknown to the best cutlers of Europe
to-day. They produced blades with perceptible tints in violet,
red, silver, and gold. Saladin's sword that would cut a veil or
d Richard Cœur de Lion's, which would sever a steel mace,
een duplicated in a hundred shops in the days of the Shogunate
teenth-century mandarins. Upon the sword art ran mad. The
d to arrange the fibers of the metals so as to form geometrical
figures of flowers, fruits, and leaves, and even the Chinese char-

acters composing quotations from the great poets and philosophers. Their skill in this field bordered on the marvelous. You can obtain superb weapons even now which in the brightest light seem made from metal mirrors. Put them in the sunlight so as to cast a reflection on a dark surface, and in the illumination you will see in faint lines every pattern I have described. The effect is the same as that produced by the magic mirrors of Japan, but how it is done no one knows. The appearance of this flood of weapons upon the market is due to an additional cause. Under the ancient régime every noble, high and low, in Japan was attended by two-sworded men at arms, just as the robber barons of the middle ages were accompanied by steel-clad swashbucklers. In 1860 there were, it is estimated, at least 400,000 "two-sworders" in Japan. The revolution of 1868 changed all this in a twinkling. Sword-wearing, except by the police and the soldiery, who had the ordinary European weapon, was made a crime. The two-sworder lost his occupation, and his tools of trade were locked up as mementoes of the golden past. But twenty years have come and gone since then, the Mikadate is an established fact, and all hopes and desires of a return to the old feudal system have become mere echoes. A new generation has arisen which cares for money and not for the "hero's weapon," and the old one, which loved the blade for its past, is rapidly dying out. The consequence is that young Japan, with admirable thrift, is putting the weapons of his sires and grandsires in the curio shops to exchange them for yen and sen, the dollars and cents of their mint. In China the mandarin has sold his grandsire's blade and carries an umbrella instead. So many have taken this course that the market is more than glutted. Two-thirds of these weapons have tasted blood. All are interesting, a majority are very handsome, while a few hundred are simply superb works of art. The prices at times are so low as to be laughable; $3, $2, $1.50, $1, and even 75 and 50 cents will procure a weapon such as Broadway and Strand dealers have frequently sold for $50 and upwards. The low prices have put many noble weapons to ignominious uses. Here and there in rich farming lands the Oriental goes beyond the Biblical prediction and turns the sword into a plowshare, a reaping hook, a pruning knife, a carver, a poker, and even a skewer. One day I saw two fishes roasting on a blade which may have swung in the great wars between China and Japan.

There is no more handsome ornament to a drawing-room or library than a trophy of arms, and of these the most attractive is a set of old eastern swords, with their exquisitely carved hilts, their noble blades, and their fantastic yet ever beautiful scabbards.

While China can not compare with Europe in the beauty, richness, or variety of the defensive armor, it nevertheless can show many ingenious and interesting types.

The original armor of the north (Manchooria and Mongolia) seems to have been leather, and in shape was more like a blouse than a jerkin. In the course of years the skin was doubled, trebled, and quadrupled, and a Chinese lower garment that might be called leather greaves and cuirasses com-i to the upper one. The Mongolian nomads learned at an :oat or cuirass made of sheepskin in several thicknesses made a ent and would turn a spear, arrow, or sword. Apparel of this to-day and may be bought very cheaply in Shan-Toong. alternating of leather and wool in the north was that of n cloth in the south of China. It seems ridiculous to call ns armor, and yet they make an armor superior in many in- Thirty thicknesses of alternate calico and paper will resist r one from a rifle at a distance of 100 yards. A spearman veapon into a man clad in this kind of garment can neither ly nor extract his weapon, and, if the enemy is an archer or long sword or javelin, he is likely to lose his life for his mis- iit of a famous Yun-Nan bandit consisted of sixty thicknesses and paper and made him practically invulnerable. These ratively light, are very durable, and, of course, extremely n these extreme types lie many kinds of plate, scale, and 'late mail never reached a high development in the far East. hat it ever passed beyond the combination of breastplate, houlder pieces. Scale mail, on the other hand, at an early ed to a high perfection. The scales were applied to cloth or s spangles are to gauze and later as tiles or slates are to the . They were composed of iron, pewter, silver, gold, or of alloys. In making a suit scales of one kind were usually ombinations were frequent in which metals of contrasting . A good suit of armor can be bought at prices ranging o.

ent pieces of armor the helmet alone deserves attention. The orked along a different channel from his European colleague ke the headpiece monstrous and terrifying rather than pro- s representing the jaws of serpents, griffins, and dragons are ut such affairs as the barred and vizored helmet which Doré re entirely unknown. Morions and skullcaps were also in are to-day. The queerest type of all is the executioner's mbles a high mouse trap or flytrap in wire and painted the rmilion. Centuries ago the wires were flat and so arranged and ax, and, owing to their great height, disconcerted the pposing army. In the north, where wood is scarce, the hel- n woolen cloth, leather, and metal; in the west, where there l was frequently employed; while in the south, in addition ls, cotton cloth and paper were also used. Helmets vary in o workmanship and materials, and range from 50 cents to $50. bucklers have been in vogue from time immemorial. The a bossed circle from 2 to 3 feet in diameter similar to those e Highlanders. Its composition is leather, metal, or woven Bamboo shields are very strong and durable. They are made

of a certain variety of that vegetable, which must have attained
size and hardness of fiber before it was fit for this particular purpo
bamboo is split into pieces an inch in width and 4 feet in length,
and braided in basketwork over a frame the size of the desired shie
dried in the sun and then in a kiln and afterwards polished and v
Its great strength and elasticity and lightness render it an admirabl
of defense. A double thickness of bamboo with metal rim makes
unlike any to be found elsewhere, and costs 50 cents. Unlike
the new weapons cost more than the old. Antiques can be had f
or a fourth of the cost of new reproductions. Rich men in Chi
cheap imitation to originals, whether new or old, and the curi
scarcely knows armor as an object of virtu.

JOSSES.

Amoy and Canton are places which supply travelers and curi
with hideous idols, called "josses." They are manufactured, whol
retail, "moderns" and "antiques," orthodox or to order, as m
sired. I am sorry to be obliged to state that much of the joss bu
fraud, pious and otherwise. The regulation joss is either a ver
placid gentleman with a large genius for lolling or a dignified, vi
male with a superfluous number of arms and hands. But these
not suit merchants who desired to astonish their folks at home.
please their customers, the Mongolian joss-maker, with a keen ey
main chance, turns out an assorted lot of clay hobgoblins warranted
the blood of a small boy or produce hysterics in a nervous and
girl. In this category come the man with the tiger face and feroci
the so-called "God of Hunger," who is only an everyday, ha
opium-smoker, and the "Snake God," who probably is a phase of
tremens. None of these belongs to Chinese art. They are simply
made for the markets of Christendom.

Joss-making is very simple. The manufacturer's chief stock
consists of wooden or metal molds. In these the wet clay is put i
and allowed to dry. It is then touched up, dipped in molten g
allowed to cool. The average workman can turn out a hundred a d
clay is kaolin, running from red and gray to snow white, and cost
cent per pound. The glaze is melted in a small charcoal furnace,
the old-fashioned soldering furnaces of retired plumbers. The w
good artist vary from 20 to 40 cents per day. The cost of a fair-si
is about 3 cents. He sells it for 5 cents to a native and for as high
the credulous European or American tourist. The molding, touc
retouching are the same in all the shops. The glazing varies ind
It may be opaque of any color, transparent but tinted with any
sired, or clear and colorless. The best work is made by painting
with heavy white paint and dipping in the glaze last described. I
kind of good work the clay is colored in caustic colors, kept in

until these have set, and then glazed as usual. The Chinese are very skillful in this field of labor, and with fine brushes will turn out josses that at first sight might be mistaken for cloisonné.

Antiques are popular with the dealers, as they can be planted and dug up to order from any desired age or dynasty and bring a handsome profit. The simplest is the "black joss." It is made by painting a clay cast with a preparation of tar, bitumen, shellac, or Ningpo varnish, wrapping in several thicknesses of paper, and firing it in a kiln. According to the preparation and treatment, you can obtain a black-brown, red-black, blue-black, or a dark-gray product. The color sets through, so that a fracture discloses a very clean and uniform surface. There is little or no vitrification in this treatment, which makes the cast resemble a carving all the more. "Touching" removes any irregularities or defects, and also adds the signs of decay which usually accompany the flight of years.

Another and very different group of josses are those carved from wood and covered with gold and gay colors. Many of these are very ancient and are much more in demand than the pottery ware. They are carved with evident skill and retain their brightness for years. The prices vary according to size, workmanship, and amount of gold or other decorations covering them. The smallest made are but an inch high and bring a few cents. The largest are 10 to 12 feet high and cost $150 to $500 and upwards. In the larger sizes (say those of more than a foot high) the carving is admirable and the coloring lifelike and very artistic. There are four of these large-sized josses in the famous temples of Lam-po-do, at the entrance of Amoy harbor, and they produce as imposing an effect as any collection of statues in the galleries of Europe.

Josses carved from stone are rare and dear. Great mandarins pay fabulous prices for small ones made from jade; those made of the pale-green and light-blue shades are much more valuable than the white, yellow, or brown. Liu, the former governor of Formosa, owns a joss about 8 inches high which is said to be fifteen centuries old and to be worth $10,000. Small ones of 1 to 2 inches high seldom cost less than $200 to $250.

The difficulty of cutting the refractory stone is great and is the chief reason for its high price.

In Fuchau they make many josses out of steatite and selenite of various colors. These are rather neat and are very cheap. The softness of the stone allows the dealer to give a newly carved image the appearance of great antiquity by rubbing it with a little fine sand. An hour's work removes all shape lines and produces that effect which marks all ancient statues from the Sphinx downward.

SOAPSTONE FIGURES.

In almost every modern drawing-room there is an ungainly statue or carving in soapstone which the owner vaguely says came from Japan, China, or somewhere in the far East. Where they really do come from is Fuchau, which, next to Amoy, is the greatest and most important city in the province of Fo-Kien. A few are carved in Amoy, Wenchow, Chan-Chan Foo, and Canton out of the soapstone rock which occurs in inexhaustible deposits in the vicinity of Fuchau. But neither in quality, much less in quantity, will the output of all these three places combined compare with that of the latter city.

The soapstone, or steatite, to use a more accurate word, is quarried almost like ordinary building stone. It is singularly free from flaws or blemishes and often comes out in pure blocks of a cubic yard. The purest quality comes in smaller pieces. Fineness from a Chinese standpoint is a matter of translucency, color, and distribution of shading. No other steatite can compare with this in variety and brilliancy of color. In a collection imported from Amoy by Simon Muhr, esq., of Philadelphia, there are objects in black, brown, maroon, carmine, indigo, ultramarine, French gray, orange purple, yellow, bister, sienna, and opal. Usually a carving is made of one color, but some are even in polychrome.

The Fuchau carvings are famous in China and are found in every city and town. The simplest are basso and alto relievos upon irregular plaques, ordinary plates, and clumsy vases. The figure is a joss (the conventional deity), a patron saint, a hero, demigod, or dragon.

Sometimes the artist is a portrait-cutter and, instead of an imaginary creature, turns out a very fair representation of a human being. The carvings of this class are very cheap, ranging from 15 cents upward. The relief portraits command prices from $1 to $5.

A second class of work are articles of domestic utility—paper weights, inkstands, joss-stick holders, pin boxes, jewel cases, pedestals, and the like. They are cut in simple geometrical forms, are highly polished, and decorated with floral designs and serpentine work. They are not dear, costing from 5 cents to $1.

A third class consists of statues and animal figures. The dragon, the Dog of Happiness, the Heavenly Poodle, Buddha, Sira, the Goddess of Mercy, fishes, buffaloes, and lions are the favorite designs of both maker and buyer. In size the carvings range from a mere toy half an inch high to handsome pieces of 2 feet square. There is a wide range of prices, a rough dragonet bringing a few coppers, while a large and well-executed Goddess of Mercy is quickly sold at $40 to $50.

A fourth class is essentially Chinese. They call it a "dramatic picture." It is a brave attempt to do in one piece of stone what Cellein did in a dozen panels of metal work. The stone, taken as a whole, is carved into a conventional mountain with impassable roads, viaducts, and caverns. At every point which pleases the artist's fancy is carved a human figure. They are out of perspective and out of proportion in every respect. Two warriors, for example, are fighting on a bridge whose timbers are like matches. Two lovers are trembling in a cavern, while the girl's irate father, as large as a baby, confronts them at the entrance. A horse whose head is larger than his trunk is about to be devoured by a dragon the size of a mouse. So the

ties run on. In spite of the ludicrous unnaturalness, the work-
xcites admiration. The infinite patience with detail, the enormous
ended upon the work, and the charming chromatic effect from the
en colors of the steatite are worthy of a high and noble art. These
pictures are not overcostly. They range from $1 to $25 apiece.
e artist is a poorly paid fellow. He is satisfied with 35 cents per
e his apprentices are delighted with even much less. They belong
rful guild which has a history of ten centuries and are as proud of
s an R. A. is of his productions with the brush.

CASH.

tions of "cash" are of considerable interest. They are small
ronze, brass, copper, or silver ranging in intrinsic value from one-
of a cent to 25 cents. The oldest of these coins on record ap-
out 2300 B. C. Over 150,000 different kinds of cash are preserved
ions. Some are wonderful examples of coinage, but most of them
y and coarse. In this field the East is a paradise for the numis-
He can work all his life, spend very little money, and leave to
thousands of coins. All he need do is to confine his work to the
of cash, the small coins in brass and bronze whose value ranges
tenth to one-fourteenth of a cent. Their workmanship varies, but
very good. Their shape to-day is like that of European coins,
xception that through the center is a square hole through which
are strung together like beads. In the past, however, other forms
loyed, including the square, triangle, heart, ellipse, shield, key,
d spear. The number of kinds is simply immense. They are
o in the literature as far back as 250 B. C. The earliest that I have
dates from the Ts'in dynasty, which ruled from 255 to 207 B. C.
t time until to-day these useful little coins have been issued by
narch, no matter whether he was Emperor of the entire country or
ne of the petty principalities into which from time to time the
mpire was broken. There have been over one thousand two hun-
pants of the various thrones, royal and imperial. In addition to
lar issues, if such they may be called, there have been special issues
to time, and also special local issues. A wealthy mandarin in Can-
l to have the finest collection extant, containing 25,000 specimens
nt kinds.

ost increases as you go backward in time. The cash of this century
cured at their nominal face value. Those of the eighteenth and
th centuries bring from 1 to 10 cents each. Those of the Han
, from A. D. 206 to A. D. 100, bring $100 each when in fine state of
on.

true antiques are found in ancient tombs and ruins. Several
were discovered in Amoy this year in digging a grave, when the
roke into an old tomb several feet below the surface of the soil.

The coins lay in a pretty earthenware jar, and were incrusted with a th layer of malachite that here and there had been changed by moisture in azurite. The coins were sold by the lucky coolies in the next twenty-fo hours and are said to have brought $1 apiece, an immense sum to men wo ing for 12 cents a day.

To succeed in collecting cash a person must be a fine Chinese schol The labor thereby involved is so severe as to preclude most collectors fr indulging in the pleasure to any great extent.

TEA-ROOT CARVINGS.

For more than a hundred generations there has been a guild of artists the province of Fo-Kien whose life work is the carving and modifying of gnarled and interlaced roots of the tea tree into things of beauty, that beauty from a Celestial point of view. The herb whose leaves gladden we ern palates in the form of Oolong, Hyson, and Souchong is a hardy pla and takes a firm hold on mother earth. Its roots seem to have no regu law of growth. Sometimes they develop very much as a beard sprouts fr the chin; at others they separate and move along in parallel lines as if th were a lignose centipede. In general it may be said that they make a lar clumsy mass from which shoot out anywhere from three to thirty rootle Their surface is never smooth, but always irregularly corrugated. The va of a root depends upon its size, its outline, its freedom from decay, and suggestiveness of some everyday object. It is rare that a main root or ro mass is more than 6 inches in diameter. Such belong to trees ranging in a from thirty years to a century. Infrequently they attain to 12 and 15 inch and are then said by Chinese experts to be four and five hundred years o

The roots are dug from the soil and allowed to thoroughly dry in open air under a shed or else in a moderately warm room. The loose ea is carefully removed, as is the loose bark and all pieces decayed, cracked, worm-eaten. The artist then determines what it is to be. The favor types are dragons, buffaloes, cows, carnivores, bears, mandarins, pries howling dervishes, dancers, or mythical heroes. If the root can not worked into one of these shapes, it is converted into a pedestal or platfo for a figure piece. The primary operation consists in sawing it into rou shape. This is done with a fine crosscut and the clean edges removed rubbing them on tiles or bricks. Sometimes a root is bent by softening with steam or boiling water and then twisting it in any desired directio Now comes the hardest task of all. The most valuable piece is that whi shows no art and seems perfectly natural. The carver goes over the bloc removing here a fiber and there a set of roots, here thinning out one on under side and forcing it down and there burning another and expanding at the burned point. I have one in my drawing-room which is a capi figure of a dragon, rearing and opening his jaws as if to spring upon his pre Careful examination shows that nothing has been added to the mass, but th hundreds of fibers, knots, and corrugations have been skillfully removed.

rly every instance a human figure made in the same manner or n wood of the same color, or else made partly from tea roots and carved wood, is added to the first piece. The designs are end- field. Learned men lecturing, birds, mandarins standing on oys riding cows and other ridiculous quadrupeds, dancing beggars, ghting each other are the commonest groups, but of the more un- iere are thousands. One famous artist in Fuchau claims to have with the aid of his apprentices, over fifty thousand different de- judging from his stock on hand, his claim seems reasonable

-root carvings are seldom very costly, running from 50 cents to e-tenths bring less than $2 each. A handsome set of a dozen can ed for $20, which will decorate a drawing-room or hall better than many times more expensive. The figures are strong, durable, danger of fracture by servants. Outside of their æsthetic value, interest in showing the wonderful ingenuity and economy of the

"FIGURETTES."

art industry in Amoy is the making of tiny images, which are nown as "figurettes," or "little devils." They are statuettes om half an inch to 3 inches in length and are molded from a composition is a trade secret. It would be better to use the the singular, for each community of modelers uses a paste dif- that of the others. Among the ingredients employed are hard wax, glue, vegetable gum, linseed gum, papier-maché, burned ia, kaolin, ultramarine, yellow ocher, chrome yellow, vermilion, g, and pulverized eggshells. Rather a wide field to choose from. one of the figure is a stick of hard, dry wood left rough to give rchase to the paste. Upon this are molded the head, toes, and The other leg and the arms are stiffened by wires or thin pieces The coarse work is done by boys, girls, women, or apprentices, markably quick and skillful. They use their fingers in outlining ty of little wooden tools in producing textures, hair, beards, and The figures are then handed over to the artists, who are always y finish the features, give an expression to the face, and remedy or mistake of their subordinates. The figures are then carefully cording to the composition of the paste, this is done in a warm ol current of air, a kiln, or the open sunlight. The best kinds a warm room and require from three to eight weeks before they hly done.

urettes are divided into two classes—toys and art objects. The built upon long sticks, like jumping jacks. The wired arms are sely to the body, so that when the stick is whirled they gyrate musing manner. The workmanship is coarse and the cost a mere ng from 1 to 2 cents per figure or from 10 to 20 cents per dozen. kind are built upon short sticks, which are fastened into small wooden platforms so as to stand upright. Their workmanship varies, some being rude and clumsy and others very fine. Their variety is infinite. One set of one hundred represents all the characters in a great classic drama. Another set of the same number embodies the various types in the armies of a heroic Chinese king and a savage monarch whom he has conquered. A third consists of two hundred figures of the various vocations of daily life. Other sets are those of distinguished generals, famous kings, heroic queens, poets, lawgivers, engineers, and admirals. The leading artist in this quaint industry claims to carry five thousand separate faces in his memory and to be able to reproduce any one in paste at the word.

The figurettes are made in colors or monochrome. When colors are employed, the greatest care is bestowed upon the correct tinting of details. The crown is gilt, the bracelets silvered, and the coats, undercoats, and trousers colored according to the style and age to which they belong. The historic accuracy in many cases is admirable. On the other hand, the modeling of colored figures is usually mediocre or worse. The features are poorly outlined and the fingers, weapons, and ornaments indicated rather than molded.

In monochrome the reverse is the case. The paste is dark red, brown, or brown black, and every detail is wrought out with the greatest care. On a figure an inch in height the eyelids, earring holes, and finger nails are often so well executed as to bear scrutiny with a strong magnifying glass. As might be supposed, the cost of this class is higher than that of the other, and runs from 3 to 6 cents per figure or from 30 to 60 cents per dozen. How the artist manages to live upon the rates is a profound mystery.

The Chinese have a happy knack of displaying all kinds of figurettes by placing them in miniature theaters, temples, or pleasure grounds. A glass box 8 by 10 by 5 inches containing diminutive trees, rocks, and twenty-five figures can be purchased for $1.

Next to a trip through China, nothing can give a better notion of the endless variety and brilliancy of costume than a set of two hundred figurettes, or "little devils."

CARVED FRUIT STONES.

Nothing is wasted in China. The stones of various fruits and the shells of nuts are cleared, dried, and carved into ornaments of the most graceful kind. Among the stones used are the olive, plum, peach, lai-chu, and cherry, and of the shells the walnut and cocoanut. The stones are selected with care; each must exceed a certain standard of size, proportion, hardness, and weight. They are dried slowly and at such a heat as not to crack or sprout and are then ready for the carver. The designer marks a rough outline of the future group or picture and hands it over to his boys or apprentices. These work with great rapidity and soon block out the design, cutting through the hard ligneous tissue, and then extract the kernel. A second treatment now takes place to dry the interior of the stone, as well as to prevent the fine lining of the interior from undergoing decomposition.

ɜted, the designer sketches a second outline, and also indicates l or brush where the surface is to be lowered, pelted, made into arabesquery, or be cut altogether away. The work is performed dinates as at first. The designer then does the finishing touches, the assistants clean, polish, and oil or wax the perfected carving. es are sold in this shape to quite a large extent, but more largely ns. Among these may be mentioned buttons, watch charms, , earrings, and brooches, and, when strung together, bracelets, klaces, watch chains, rosaries, and official ornaments.

ce of a stone varies greatly with the workmanship and the fame r. Some may be bought as low as 10 cents apiece, others comgh as $2 and $3 each. The average price is 30 cents a stone some discount for purchases in quantity. The carvings display and beauty. One class represents bunches of flowers and leaves, tils, stamens, and tendrils are accurately executed. Similar to its and flowers and flowers and leaves. A second class is comrvings of birds, reptiles, and higher animals. The dragon, , nake, horse, lion, tiger, camel, elephant, and bull are the res. I do not recall ever having seen a cat, dog, wolf, sheep, her animal beyond those specified. A friendly mandarin, to ed this, said that a canon in Chinese carving was to reproduce nimals which had been deified, and that the ten mentioned were nly ones which had enjoyed divine honors. A third class, and ost interesting, comprises groups of human figures representing tory, poetry, mythology, and the drama. The workmanship is as to be microscopic in its delicacy. In fact, the finishing made by the artist while using a magnifying glass of at least ers. On stones not over an inch in length along their major axis common to find eight, nine, and ten characters in different d costumes. Unlike most phases of Chinese art, there is much to perspective and foreshortening. Some of these pieces might ade by Hindoo or Italian artists, so free are they from local or ntionalism. Nevertheless, in the main, conventionalism is all Dignity always wears a beard, and low comedy with villainy are th queer markings and quaint attitudes. The horse has a head rge, and the dragon carries a tail which in real life would have prompt destruction. Gods wear queues and goddesses stroll mpressed feet. But was there ever a school of art of any sort onventionalism? Even were there one, it would probably be as ry as the most artificial systems of our own civilization or of this mighty one upon the borders of the China Sea.

EDWARD BEDLOE,
Consul.

STATES CONSULATE,
Amoy, July 30, 1892.

ITALIAN EXPORTS TO THE UNITED STATES.

REPORT BY VICE-CONSUL-GENERAL WOOD, OF ROME.

Table showing the value of declared exports from the consular districts of the King
Italy to the United States during the year ended June 30, 1892.[*]

Articles.	Value.	Articles.	Va
Alabaster, wrought	$59,734.28	Hemp:	
Anchovies	751.02	Carpet yarns	$5
Animals, breeding	2,030.00	Tow	35
Antimony	1,650.24	Herbs, dry	
Antiquities	6,027.38	Household goods	2
Argols and wine lees	1,301,263.72	Iron and brass ware	
Asphalt and bitumen	45,909.18	Iron ore	61
Beans	39,561.15	Ivory, wrought	
Beeswax	5,003.90	Japanese articles	
Bee queens	112.52	Juniper berries	
Bones	5,300.60	Lace and embroidery	
Books	6,705.31	Laurel leaves	
Boracic acid	27,939.59	Lemon citrons in brine	
Briarwood	41,156.06	Lemon juice	9
Brimstone and sulphur	2,117,712.48	Licorice	3
Bronzes	32,153.96	Lime	
Buttons	1,148.87	Liqueurs	2
Caoutchouc ware	2,032.67	Manna	1
Cement	240.15	Marble:	
Cheese	265,620.44	Blocks	46
Chemical preparations	4,250.87	Chippings	
Chestnuts, extract of	1,734.62	Slab	9
China ware and majolica	2,356.30	Statuary	15
Citrate of lime	36,990.05	Tiles	
Citron	3,253.25	Wrought	3
Cloths, ornamental	2,006.58	Matches	
Clover	2,418.29	Medicinals	
Cosmetics	1,790.83	Mineral water	
Cutlery	711.12	Mosaics	
Dog grass	858.73	Mushrooms	
Earthenware	486.94	Musical instruments	
Ecclesiastical vestments	463.39	Nuts	5
Essences	485,997.63	Almonds	23
Fans	2,597.23	Chestnuts	2
Figs	2,345.59	Filberts	19
Filagree, silver	12,317.97	Hazelnuts	1
Fish, salted and in oil	10,954.63	Pistachios	1
Fruit	707,723.55	Walnuts	3
Candied	289,292.67	Olive oil	66
Dry	1,044.53	Olives	
In spirits	289.50	Orange peel	
Fruit juice	546.68	Oranges and lemons	5,5
Furniture, frames, and carved wood	31,197.63	Orris root	2
Garlic	8,067.15	Paintings	9
Glassware and beads	31,117.52	Paper	
Gloves	146,688.42	Passementerie	
Glycerine	43,967.45	Paste	43
Gum arabic	10,309.77	Peas	1
Gunstocks	6,277.15	Plaster casts	
Haircloth	4,047.90	Plumbago	
Hair:		Preserves	
Horse	14,019.12	Pumice stone and bricks	5
Human	27,529.74	Rags and waste	49

[*] As declared at the several consular offices of the United States in Italy.

ble showing the value of declared exports, etc.—Continued.

es.	Value.	Articles.	Value.
	$20,774.34	**Straw goods:**	
	459.34	**Braids and** plaiting	$483,804.52
	5,547.87	**Hats**	9,465.84
	73,536.26	**Strings for musical** instruments	579.65
	7,403.54	**Sugar of milk**	1,188.26
	564.19	**Sulphur oil**	26,320.77
		Sumac	297,391.19
	23,550.47	**Sundries**	159,150.03
	14,784.35	**Surgical instruments**	254.00
	64,951.08	**Talc**	7,363.88
	1,039.11	**Tartar**	3,506.59
	14,421.32	**Tiles, cement**	2,129.16
		Tomatoes	673.63
	240,879.02	**Twine**	449.71
	5,004,192.57	**Umber earth**	7,879.94
	91,431.34	**Velvet**	1,040.13
	3,028.43	**Wine**	230,166.87
	86,573.75	**Wood, olive**	608.40
	209,674.10	**Wool, manufactures of**	425.76
	50,037.19	**Total**	22,927,182.91
	10,922.41		
	1,206.29		

CHARLES M. WOOD,
Vice-Consul-General.

ATES CONSULATE-GENERAL,
Rome, August 16, 1892.

COMMERCIAL YUCATAN.

REPORT BY CONSUL THOMPSON, OF MERIDA.

year ended June 30, 1892, has been one of trial to Yucatan.
, from which her laborers gain their chief sustenance, has not
erefore, there has been no special lack of food supply. The
acco crops have been fair, and the prices of these commodi-
firm. With all these facts it would seem as if the peninsula
ould abound with contentment and prosperity. The fact is
s not yet recovered from the effects of the high prices of
is now suffering from the debility that inevitably follows an
prosperity and extravagance.

thinking, as they have always thought in all lands under
stances, that the high prices and feverish activity would con-
aunched into ordering goods far beyond the resources of their
n the crash came—for it was a crash in every sense of the
nnequen fiber, the sisal grass of commerce, Yucatan's only
pe, dropped in price from 11 cents per pound to 5 cents, and
hat, the merchants were left with expensive stocks on hand,
ing due, and no money to pay them with. Then commenced

the debility that follows financial fevers, and but for the helpful shrewd management of a few financial pillars of the country g would have overtaken the merchants of Yucatan. For a while if even these doctors of finance would have to give up their pa as hopeless. At last the prospects are brighter, and, while the continues, it is the feebleness of healthy convalescence and not cline of mercantile death.

Business can not take a very active part while exchange is at premium, yet it is gradually regaining its forces to take advar first signs of a renewed prosperity.

The people of Yucatan, merchants and planters, are to be co on the successful way in which they have passed through a ver stage in their financial growth, and I see no reason to doubt prosperity, the more sure because based upon facts and not infla

HENNEQUEN FIBER.

I here append such data and statistics as I have been able to cerning the past and present output of hennequen fiber, the mos commercial factor in the prosperity of the Yucatecan peninsu the fiscal year ended June 30, 1892, there were exported to the U 286,000 bales, having a value of $3,914,827 in United States coi the last five calendar years (1887–'91) the total output of hen for the State of Yucatan amounted to 1,258,247 bales, having round terms of $15,000,000 in United States coin. Of this within the above period the United States consumed 92½ per Britain took 5 per cent, Germany accounted for 1 per cent, whil her colonies provided for the remaining 1½ per cent.

With these figures in mind, showing in a startling manner the prosperity of Yucatan depends upon that of her sister States northern Republic, it is eminently proper and natural that she more to them—to New York, to New Orleans, and to Boston— chases and less to Europe than she has hitherto done. And it be a fact. Merchants in Boston and New York who less than a could recall Yucatan only by taking down their atlases now kno and even the faces of her principal merchants. The result of al in the shop displays of Merida, at the dinners of the merchants, wearing apparel of all classes. American goods are fast taking European products, and I see no cause why this happy state of a not continue until every store is filled with American goods sold the merchants of Yucatan by our merchants. This consulate is a to do its utmost to aid in bringing about this happy result.

EDWARD H. THOMPS

UNITED STATES CONSULATE,
Merida, July 7, 1892.

TRADE OF CHIN-KIANG IN 1891.

REPORT BY CONSUL JONES.

rious dispatches have advised the Department, the valley of
iang has been in a disturbed condition for the past three
as caused a feeling of more or less insecurity and the derange-
dinary course of trade, though the statistics of the customs
ow an increase of business throughout the entire length of the
This disturbance has affected the interest of foreign trader and
nore than is shown by the volume of trade itself. In addition
ead disaffection among the people, the local officials through-
in question have instituted schemes of taxation which they
ry subscription" and which the Chinese merchants do not
eir own pockets, but charge on the foreign goods, whereby
de is injured. So far as this consular district is concerned, I
uch remedies as were in my power to prevent these schemes
e trade, with what result I do not yet know, though I am
believe favorable.

of the trade of Chin-Kiang for the year 1891 it was neces-
ing into particulars, that I should give the situation as above,
a more or less depressing effect both on the price of and the
reign products. The only exception seems to have been in
kerosene oil sent into the interior under transit passes, and that
Chinese hands covered by a foreign name.

of this article for 1891 shows a falling off as compared with
amount sent into the interior an increase, which is accounted
ge quantity stored in godowns, or warehouses, at the close of

r the riot of Woo-Hoo, an open port in this district 100 miles
ang, holders of all kinds of foreign merchandise lowered their
e expectation of thereby increasing their sales; but, though
op of 18 candareens (1 candareen=1½ Mexican cents) per
rican sheetings, 20 candareens on American drills, and 25
ordinary shirtings (6½ and 7 pounds) and a like fall in
merchandise, holders found it difficult to clear their godowns.
noted, as denoting the precarious state of the foreign-goods
ough the disturbances (riots) were for the first nine months of
confined to the Yang-tse Valley, the demand for foreign prod-
orthern provinces, or, more correctly speaking, in Ho-Nan,
nd the southern part of Shan-Hsi, fell off 90 per cent. Thus
ent 6,454 bales of from 65 to 110 pieces per package to the
ve mentioned; in 1891 they only sent 1,300 bales. In metals
nd lead) and kerosene oil a very much greater falling off was

experienced. The price of kerosene oil dropped 12 candareens per case, that is, deliveries were made for 1.12 taels, instead of 1.24 taels.

At the end of July, 1891, the import of foreign merchandise almost entirely ceased, except such as were sold to arrive, that is, sent into the interior immediately on arrival by dealers who had purchased previous to that date (July). It is also a curious fact that such metals as steel and lead were sent into the interior in larger quantities from May to the end of September, 1891, than during the same period in any previous year, though the effects of the riots on the demand for these articles should have been the same as on other merchandise.

If we turn to the question of the purchasing power of native products, we find that there was an increase in this respect over 1890, which can be accounted for by the smaller quantity put on the market and the uncertainty connected with the supposed influence of the secret societies, an inciting factor in the Yang-tse riots. The increase on lily flowers was $2 per picul; melon seeds, $1.25; walnuts, $1; and some of the medicines as much as $5. As the dealers in native produce carry their sales to credit for the purchase of foreign merchandise, they should, it seems, have realized handsome returns in their transactions, for the simple reason that foreign products were sold for less, and native for more, than the usual rates. I have been informed that the prices for foreign merchandise in the interior were maintained thus: Shirtings were sold for the piece at 3.15 taels, kerosene oil at 1.35 taels, and so on.

Foreign merchandise sent into the interior under transit passes in 1891, compared with 1890, was as follows:

In 1891 the quantity of American sheetings sent was 8,927 pieces; in 1890, 7,262 pieces; increase, 1,665 pieces. In value the difference was: In 1891 at 2.68 taels, 23,924.36 taels; 1890 at 2.80 taels, 20,333.60 taels; making an increase of 3,590.76 taels. At the end of 1890 there was a fair quantity stored in godowns, while at the end of 1891 all piece goods had been cleared for inland.

Of American drills the quantity sent inland was as follows: In 1891, 20,620 pieces; 1890, 22,179 pieces; decrease, 1,559 pieces. In value the difference was: In 1891 at 2.40 taels, 49,488 taels; 1890 at 2.60 taels, 57,655.40 taels. As will be seen, the number of pieces sent inland in 1890, as well as the value, was considerably in excess of 1891. The average price during 1891 was 2.40 taels per piece; in 1890, 2.60 taels.

The number of pieces of English shirtings imported, most of which were sent inland under transit passes, was: Gray, 1,078,998; white, 138,356. The gray shirtings were of the 7-pound variety valued at 1.05 taels per piece.

Of woolen goods, such as lastings, camlets, long ells, Spanish stripes, and broad medium cloths, 27,183 pieces were imported, valued at 204,658 taels (haikwan sycee). All but 2,500 pieces were sent inland under transit passes. Of blankets 162 were sent inland, valued at 2.80 taels per pair, and of figured orleans 5,068, valued at 11,361 Chin-Kiang taels.

g table is taken from the books of the Chinese customs at

Table showing the trade in foreign goods.

	Imports from Hongkong and Chinese ports.		Reëxport to Chinese ports and Hongkong.		Net total imports.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	*Piculs.**	*Taels.*†	*Piculs.**	*Taels.*†	*Piculs.**	*Taels.*†
	50,225.22	110,495	4.2	9	50,221.02	110,486
	4,151.84	8,304			4,151.84	8,304
	333.66	500			327.31	490
	937.4	5,624			937.4	5,624
	4,945.26	19,781			4,945.26	19,781
	3,360	4,000			3,360	4,000
	68,024.9	81,804	150	188	67,874.9	81,616
d	1,867.15	4,472	20.91	44	1,846.24	4,428
	219.59	4,831			219.59	4,831
	538.67	1,724	1.68	5	536.99	1,719
	10,721.92	32,166			10,721.92	32,166
lates,						
	245.11	4,412			245.11	4,412
	96.9	992			96.9	992
	44.47	981			44.47	981
copper						
	1,687.78	21,941	2.2	29	1,685.58	21,912
ssed	1	20			1	20
rod,						
	207.06	3,313	8.44	135	198.62	3,178
	160.43	3,209			160.43	3,209
	4,630.92	15,745	96.43	327	4,534.49	15,418
	500	632			500	632
	69.77	370			69.77	370
	32.55	1,400			32.55	1,400
silver,						
	317.9	11,939			317.9	11,939
	430.06	1,272	4.27	30	425.79	1,242
	134.45	1,295			134.45	1,295

The picul is equivalent to 133⅓ pounds avoirdupois.
The haikwan tael, equivalent in American money (gold) to $1.20.

A. C. JONES,
Consul.

ATES CONSULATE,
Chin-Kiang, July 16, 1892.

THE PORT OF MARSEILLES.

REPORT BY CONSUL TRAIL.

mmemorial Marseilles has held a leading position, both as mercial port of France and as one of the busiest harbors ranean shores. The history of the port can be traced back enturies till we arrive at a period where reliable historical ev- mingled with tradition and where it is impossible to regard hat have come down as other than mere conjecture.

The earliest date assigned for the foundation of this port is B. C. 1200–1000, when, it is alleged, certain Phœnician settlers established trading posts in this locality; and this theory—that the city owes its origin to the Phœnicians—has been strengthened by certain archæological traces which were brought to light during the opening up of a street in 1863. Classical tradition, however, but with less supporting evidence, ascribes the foundation of "Massilia" to a colony of Phocæans, who emigrated with their families from Asia Minor to escape the tyranny of Cyrus (B. C. 600), and of whom mention is made by Herodotus and Horace.

To whatever founders the city may look for its origin, its rapid development is a matter upon which there lies no shadow of doubt. It soon acquired sufficient force to enable it to contend with and conquer Carthage in a sea fight, and it was looked upon at an early date as an important factor among the Mediterranean naval powers.

The most ancient portion of the port of Marseilles is the "Vieux Port," a basin of 70.5 acres in area, at present devoted almost exclusively to sailing vessels. From the primeval period spoken of above down to the end of the fourteenth century this basin was left in its natural state, at which period two towers were erected, one on either side of the entrance, and a chain stretched between them at night for protection.

It was only in the sixteenth century that the construction of quays was commenced, the edges of the port consisting hitherto simply of sloping banks, which necessitated the existence of light boats or barges for the loading and unloading of ships. The first quay was constructed by order of Louis XII in 1511 on the north side of the harbor, and a similar one was erected fifty years later on the south side by the city of Marseilles. These quays were very narrow and rudimentary in their construction; and the depth of water at their base was so slight that it was impossible to bring ships up alongside, and not only so, but the port was continually being decreased in depth by the deposit of sewage from all the drains in the town. As a natural consequence we continually find minutes in the archives of the town of considerable sums of money devoted to the cleansing of the harbor.

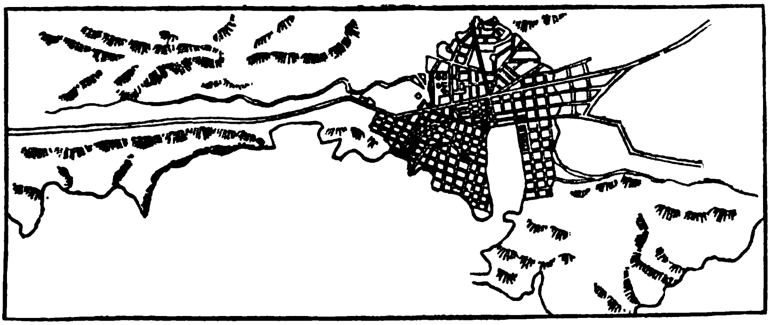
The first important steps taken to enlarge and develop the old port date from 1782, when two canals were run out from one side of the basin parallel to one another and their extremities joined by a third arm, the channel so formed being known as the "Canal des Douanes." Ten years later the shipping had so increased that it was extremely cramped, and various projects for the extension and amelioration of the harbor were put forward, which were not realized, however, till a considerably later period. Of these the most noteworthy was the creation of a quarantine harbor, which was effected in 1822–'23 by the construction of a breakwater between the islands of Pomègues and Ratoneau, a few miles off the coast and opposite the town.

The first project for the construction of a new harbor at the Joliette dates from 1829 and was put forward by Mr. J. Garella, engineer of bridges and roads at Marseilles. The actual works, however, were only begun about 1844, and their cost up to the present day has been about $16,984,000.

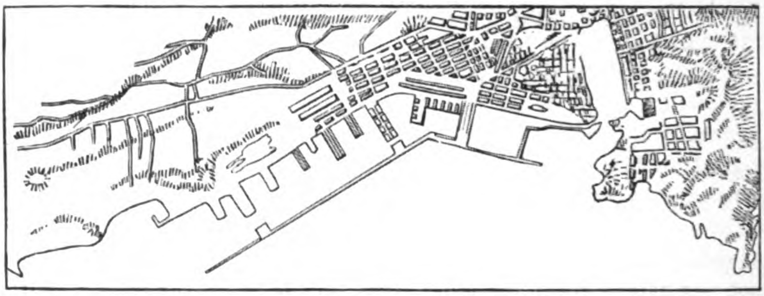
The new basins are situated to the north of the old port and are protected by a breakwater 3,937 yards long, which is built in a depth of water varying from 36 to 92 feet. The total area of the new basins with the old port is over 400 acres, and the development of the quays is 18,117.61 meters. In the construction of the latter concrete plays a very important part, but it may be remarked that in the old port and part of the basins at the Joliette the original method of laying the substructure of the quays has not given very satisfactory results. The manner of construction was as follows: The foundation consisted of a mass of concrete that was run into a wooden casing and allowed to harden, when the casing was removed; this concrete construction was carried up to the water level, and upon it was built a wall of ordinary masonry, covered and faced with freestone. The principal defects in this system of construction arose from two causes—instability of the soil under the foundations and imperfections either in the composition and mixing of the concrete or in the manner in which it was allowed to flow into the casing.

The quays which have been constructed since 1857 are built on another plan. A bed of stones is laid as a foundation, and on this a series of huge artificial blocks is placed, without any mortar between them. This series is continued up to the water level; but, before the wall that is to form the front of the quay is built upon it, the system of blocks is subjected to great pressure, by means of two rows of similar blocks which are placed upon it, in order to make the subsoil and foundations settle quickly into the shape they will definitively assume. The two rows of blocks are then removed, and the wall is built in the usual way. This method of construction has given the most excellent results, and the quays so formed are second to none either in appearance or in durability.

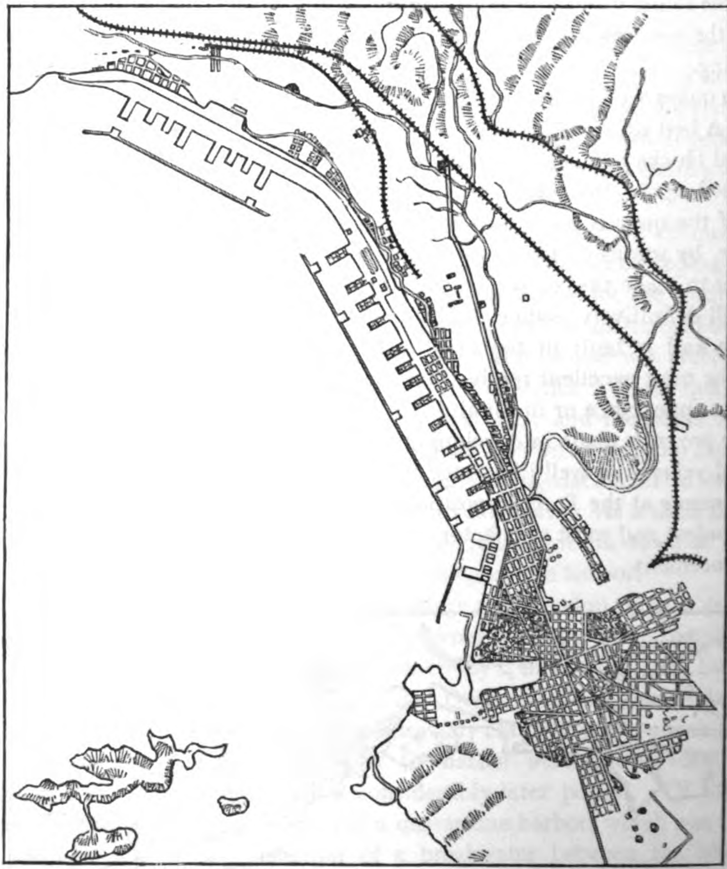
The progress made in developing the port of Marseilles in the past one hundred years is so well illustrated in the report of the Marseilles Chamber of Commerce at the Paris Exposition of 1889 that I introduce the cuts here as the easiest and most satisfactory way of letting the city tell its own story of advancement.



Marseilles, 1789.



Marseilles, 1889.



Marseilles as projected, 1900.

e number and tonnage of vessels entered at the principal ports of the world in 1832 and 1887.

Ports.	1832.		1887.
	Number.	*Tons.*	*Tons.*
	5,697	1,050,147	12,307,166
	2,840	678,965	7,940,788
	7,201	629,780	4,820,370
	3,237	406,424	*8,666,012
	......	400,385	†6,087,110
	3,596	388,551	2,485,357
	4,308	386,313	3,920,234
	5,880	350,410	2,953,894
	2,223	291,366	2,448,284
	1,714	262,935	2,223,857
	3,387	253,150	1,355,602
	1,404	246,357	......
	2,340	245,681	913,647
	1,747	232,528	1,384,877
	3,068	225,348	1,928,446
	1,269	220,682	1,618,036
	1,068	186,359	1,351,732
	3,853	168,147	......
	......	157,811	†1,282,159
	1,246	151,042	3,717,738
	2,452	940,836	823,942
	1,152	116,705	1,420,668
	934	110,331	......
	755	102,377	......
	1,565	107,465	......
	......	......	6,550,000
hields, Newcastle, etc.)	......	......	6,002,475
	......	......	5,903,024
	......	......	5,344,426
	......	......	3,926,318
	......	......	3,301,987
	......	......	2,837,152
	......	......	2,713,698
	......	......	2,400,000
	......	......	2,299,254
	......	......	2,135,385
	......	......	2,041,966
	......	......	1,729,069
	......	......	1,665,884
	......	......	1,553,575
	......	......	1,515,250
	......	......	1,444,683
	......	......	1,355,105
	......	......	1,333,134
	......	......	†1,290,762
	......	......	1,259,511
	......	......	1,200,000
	......	......	1,128,716
	......	......	1,080,479
	......	......	1,041,752
	......	......	998,563
	......	......	†965,054
	......	......	754,439

orts.

for the ports of the United States appear to refer to ocean commerce without including

Table showing movement of the port of Marseilles in the year 1792.

[From the custom-house returns.]

Countries of origin or destination.	Entries.		Clearances.	
	No.	Tons.	No.	Tons.
Ports in the Levant and Barbary	350	54,500	400	68,000
Italian ports	950	95,000	1,050	106,000
Spanish ports	350	56,000	410	75,000
Baltic, Dutch, etc., ports	120	24,000	100	20,000
French possessions in America	92	36,800	88	35,200
Pondicherry, Chandernagore, and Bourbon	....	....	3	1,300
	50	2,000	24	960
French ports on the high seas	130	3,000	152	31,920
Mediterranean coasting trade	400	24,000	390	23,400
Total	2,442	322,300	2,617	361,780

NAVIGATION IN 1891.

The statistics of navigation at the port of Marseilles show an increase in the maritime movement of this port for the year 1891 as compared with the year 1890. The total number of vessels which entered and cleared during the year 1891 was 18,079 having an aggregate tonnage of 10,610,820 tons, as against 17,249 entries and clearances with a tonnage of 9,702,046 tons in 1890. Of this total of 18,079 vessels there were 1,236 entries and clearances connected with international commerce, of which 335 were made by sailing vessels and 901 by steamers, with the respective tonnage of 151,090 and 1,596,229 tons. The number of entries and clearances in the coasting trade was 16,843 having an aggregate tonnage of 8,863,501 tons; and of these 6,116 entries and clearances were made by sailing vessels and 10,727 by steamers, with the respective tonnage of 821,318 and 8,042,183 tons.

As compared with 1890, there is an increase in the entries and clearances made by sailing vessels of 301, and of those made by steamers of 529, with a total increase of tonnage amounting to 898,774 tons.

Five hundred and eighteen vessels carrying the French flag and engaged in international commerce entered and cleared at Marseilles. These had a tonnage of 779,136 tons. Eight hundred and seventy-six vessels carrying foreign flags and having a tonnage of 1,099,371 tons entered and cleared in the same year. In the coasting trade the entries and clearances of vessels sailing under French colors were 12,337 with a tonnage of 5,620,351 tons, and of those sailing under foreign flags there were 4,348 entries and clearances with a tonnage of 3,141,962 tons.

The total registered tonnage of all merchant vessels which entered or cleared during the year 1891 amounted to 10,610,820 tons, an increase of 908,774 tons as compared with that of 1890, while, on the other hand, the weight of merchandise transported by this shipping was 5,275,291 tons in 1891, against 5,003,236 tons imported and exported during the preceding year.

owing tables show the details of the maritime movement of the seilles for the years 1890 and 1891:

arrivals and departures of vessels at the port of Marseilles during the year 1891.

ARRIVALS.

Description.	Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.
French.				
	205	368,435	11	4,976
	3,983	2,632,255	2,191	191,968
Foreign.				
	347	616,284	64	39,348
	1,262	1,202,020	951	252,333
91	5,797	4,818,994	3,217	488,625
90	5,534	4,405,602	3,020	464,707

DEPARTURES.

Description.	Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.
French.				
	209	364,884	49	16,968
	4,008	2,637,560	2,189	182,451
Foreign.				
	140	246,626	211	89,798
	1,474	1,570,348	785	194,566
91	5,831	4,819,418	3,234	483,783
90	5,565	4,367,364	3,070	464,373

the nationality of vessels entered and cleared at the port of Marseilles during the year 1891.

	Entered.				Cleared.			
	Long voyages.		Coasting trade.		Long voyages.		Coasting trade.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
	2	1,545	...	...	...	...	2	1,545
	20	9,897	82	50,815	40	25,382	57	33,639
	308	525,449	442	505,723	82	139,542	662	891,170
	12	3,675	22	12,278	6	1,753	27	12,809
	30	44,100	27	42,439	27	39,923	33	48,858
	21	21,571	57	43,872	19	12,642	64	58,628
	...	...	284	118,571	...	...	260	110,593
	75	45,633	540	197,230	93	45,281	528	193,245
	6	4,426	9	6,549	7	5,079	10	6,807
	5	8,608	432	292,648	20	37,178	426	266,605
Norwegian.	38	17,842	162	91,316	40	18,624	170	95,116
	...	...	9	2,536	...	...	7	2,687
	11	22,925	20	30,307	14	28,266	16	25,976
n	528	715,701	2,086	1,394,284	348	353,670	2,262	1,747,678
	256	386,786	6,144	2,810,848	262	392,350	6,193	2,809,503
in 1891	784	1,102,487	8,230	4,205,132	610	746,020	8,455	4,557,181
in 1890	736	920,142	7,778	3,951,067	532	591,884	8,103	4,239,858

Table showing number and tonnage of vessels entered into and cleared from the port of Marseilles and weight of merchandise transported by them during the years 1890 and 1891.

Description.	1891.			1890.		
	Vessels.		Merchandise transported.	Vessels.		Merchandise transported.
	No.	Tons.		No.	Tons.	
Arrivals.						
Steamers:			*Tons.*			*Tons.*
French	4,188	3,000,690	1,157,993	4,084	2,815,390	1,217,502
Foreign	1,608	1,818,304	1,855,369	1,450	1,591,780	1,605,537
Total steamers	5,796	4,818,994	3,013,362	5,534	4,407,170	2,823,039
Sailing vessels:						
French	2,202	196,944	253,030	2,129	205,194	239,352
Foreign	1,016	291,681	360,765	951	257,945	297,016
Total sailing vessels	3,218	488,625	613,795	3,089	463,139	536,368
Total French vessels	6,390	3,197,634	1,411,023	6,213	3,020,584	1,456,854
Total foreign vessels	2,624	2,109,985	2,216,134	2,401	1,849,725	1,902,553
Total arrivals	9,014	5,307,619	3,627,157	8,614	4,870,309	3,359,407
Clearances.						
Steamers:						
French	4,217	3,002,434	904,104	4,108	2,785,860	858,574
Foreign	1,614	1,816,984	382,599	1,457	1,581,500	396,069
Total steamers	5,831	4,819,418	1,286,673	5,565	4,367,309	1,254,643
Sailing vessels:						
French	2,238	199,419	137,351	2,089	201,116	170,005
Foreign	996	284,364	224,110	981	263,252	219,181
Total sailing vessels	3,234	483,783	361,461	3,070	464,368	389,186
Total French vessels	6,455	3,201,853	1,041,455	6,197	2,986,976	1,028,579
Total foreign vessels	2,610	2,101,348	606,679	2,438	1,844,761	615,250
Total clearances	9,065	5,303,201	1,648,134	8,635	4,831,737	1,643,829

CHAS. B. TRAIL,
Consul.

UNITED STATES CONSULATE,
Marseilles, August 10, 1892.

SUGAR-REFINING IN NICARAGUA.

REPORT BY CONSUL NEWELL, OF MANAGUA.

One of the most notable additions to the industries of Nicaragua is that of the San Antonio sugar refinery. The men who have undertaken this work are among the most prominent in this Republic, and their connection with the enterprise is a guaranty that it will be a success. The sum involved in this enterprise is something like $500,000.

This sugar estate is situated in the department of Chinendega, 23 miles from Corinto, one of the finest harbors on the Pacific coast, and 3 miles from

Chichigalpa, a station on the line of the National Railroad. The National Railroad runs from Corinto through Chichigalpa and Leon, the largest town in the Republic, to Momotombo, on Lake Managua. From Momotombo there is a daily service of steamers to Managua, the capital, which is again connected with Masaya and Granada. From Granada there is another service of steamers to San Juan del Norte, also known as Greytown, touching at San George, which latter place is connected by a tramway with Rivas, the center of the great cacao district of this country. The means of communication in Nicaragua are far better than in any of the adjacent republics.

Chichigalpa is in direct communication with all the principal towns in the Republic. The town of Chichigalpa has a population of about 5,000 and will provide all the labor necessary for working the estate.

The property consists of about 4,500 acres of very fertile soil, which, according to an analysis made in London, is eminently suitable for the cultivation of sugar cane, cacao, and other tropical products. The estate is watered by five streams yielding together about 16,000,000 gallons of water every twenty-four hours. Three of these streams have already been dammed for the purpose of irrigation. The estate has been surveyed and the levels marked, and the plan proves that the whole property is well adapted for a system of irrigation. There are several houses on the estate; also a good assortment of agricultural implements, including a number of carts. There are 175 acres of pasture land stocked with oxen, horses, and cows.

A complete sugar-making plant, with the latest modern improvements, producing 22 tons of sugar every twenty-four hours, was purchased last year in Glasgow. The mill buildings, which are all of iron, are already erected, and the machinery, amounting to 1,500 tons, has arrived at Corinto. A part of this machinery has been transported to San Antonio, and the rest will be shipped as soon as possible so as to have everything ready to grind the first crop of sugar cane in the coming December or January. This crop will be from 437 acres of cane now planted and which is in splendid condition. An equal number of acres of land have been cleared and are now being put in cane. It is expected that the production this year will amount to 1,800 tons of sugar and 40,000 gallons of rum. It is the intention, when the plant is in full working order, to produce annually 3,000 tons of sugar and 80,000 gallons of rum.

A narrow-gauge railway is being constructed from Chichigalpa, passing through the estate; this, in conjunction with a portable railway, will be used to carry the cane to the mill. The rails and cars were purchased in England and with the machinery have arrived in Corinto.

The consumption of sugar in Nicaragua is at present estimated at 3,000 tons annually. About three-fourths of this is imported, and the price this year has been 15 cents per pound. The projectors of this industry feel confident of being able to dispose of three-fourths of their sugar in this country for at least 10 cents per pound, and that Costa Rica presents a good field

for the disposition of the balance. Though the company have c
in selling their sugar at 10 cents per pound, they have, however,
their calculations on selling the sugar at 5 cents per pound and t
30 cents per gallon. Even at this, the very lowest possible fig
thought that the company will pay a dividend of 25 per cent on t
of between £70,000 and £90,000, which is the estimated cost of
when in full working order.

The company have estimated their expenses according to the
table to produce 3,000 tons of sugar and 80,000 gallons of rum an

Description.	Amount.	Description.
1 engineer	$3,000	10 men to sew and mark sacks
1 assistant engineer	720	40 men with portable railway for carryin
1 administrator	1,800	cane to operating works
6 overseers at $720 each	4,320	Food for men during harvest
1 foreman	720	Food for officers and staff
2 carpenters at $480 each	960	6 guards
1 cook	720	30,000 tons of cane, contract cutting
During crop time:		60,000 sacks at 25 cents per sack
16 men at $4 per month for 6 months	384	Oil, tallow, etc
6 men at $4 per month for 12 months	288	80 men to work in field during wet seaso
2 servants at $120 each	240	Food for same
3 men for herding cattle	504	General expenses
30 men at the mill for 5 months	1,440	Contingent expenses
8 clarifiers	480	1 triple effect
3 distillers for 6 months	200	1 sugar-boiler
1 storekeeper	600	8 centrifugals, 5 months

The expenses enumerated above amount to $66,012, to which i
dividend of 25 per cent on $500,000, the estimated working capi
company, making $125,000, and a reserve fund of $12,985, a tota
of $204,000.

The company estimate that their revenue will be equal to a like
$204,000.

The estate is exceedingly well situated and well watered. Th
course of construction is very complete, and the immense cane fiel
such an appearance as to leave no room for doubt as to the fertil
soil. The prices estimated for the sale of the produce are so far
present selling prices as to leave a wide margin, and the estimate fo
is decidedly liberal considering the price of labor here. This bu
my opinion, will be a very profitable one and should give far great
than the dividend of 25 per cent, as estimated by the company.

WILLIAM NEWEL
C

UNITED STATES CONSULATE,
Managua, July 15, 1892.

AND LIME TREES IN THE LEEWARD ISLANDS.

REPORT BY VICE-CONSUL GALBRAITH, OF ANTIGUA.

of the introduction of the lime tree into these islands is a matter e. So far back as 1791 it is recorded that large quantities of the tree were exported from Dominica to England and America. It vever, until about the year 1850 that the systematic cultivation of an by Dr. Imray in Dominica, and quite independently by the ge in Montserrat. During the first decade of the existence of little progress was made. However, it lived, and early in the emand for it began to increase, and the cultivation of the tree ufacture of lime juice has gone on slowly increasing up to the .

under cultivation in Montserrat this year will be about 1,200 ich about 900 acres are in fruit-bearing trees. The industry is a more systematic manner in Montserrat than in any of the s of the group, the Montserrat Company having had for several petent chemist to superintend the manufacture of lime juice and the agricultural management of their orchards. The work he earing fruit, and to-day Montserrat is the chief seat of the lime the Leeward Islands.

a considerable quantity of lime juice manufactured in Dominica, e orchards are smaller, and, with one or two exceptions, the not exercised in the cultivation of the trees nor in the manufac- juice. The industry is, however, growing, and, if the govern- ds in forming roads through the island, it is expected that there ge increase in the cultivation of lime trees, as well-cultivated ls are said to pay a good return. It is impossible to estimate ime cultivation in Dominica. There are no official returns, and of cultivators do not plant in regular orchards, as is done in

hristopher and in Antigua the cultivation of the lime is unknown. hese islands manufactures lime juice for export. The few trees er the islands supply the inhabitants with sufficient fruit for their ich is used principally in making various beverages and for culi- es.

s are raised from seed in nurseries and transplanted when 10 to gh to the orchard, where they are planted in rows about 15 feet cre requiring from 175 to 200 plants, light sandy loam soil being o their vigorous growth. In Dominica, where the soil is rich, e attains its greatest height and yields the most fruit, a large juicy s very rich in citric acid. A lime tree will grow in almost any fruit is small, and the life of the tree is not so long as in rich, ed lands. From three to four years from the time of transplanting the tree begins to bear fruit; about five years, however, would be the average time for fruit-bearing, and it continues to bear for over twenty years. From the seventh to the fourteenth year the tree is in full bearing condition. After this, if the orchard is to be continued, young trees must be planted to supply the place of the older ones as they wear out. The tree blossoms all the year if there be rain; but March and April are the principal flowering months, and the fruit begins to ripen in June, when the lime harvest begins, and reaches its height in August. From then on to December the yield decreases each month until February, when it ceases to yield fruit.

The largest crops are gathered in years in which the rainfall is heaviest. The average yield of fruit from an orchard in full bearing would be about 60 to 80 barrels (an ordinary flour barrel is employed in all orchards to gauge the quantity of fruit) from an acre per annum. This could, it is believed, be greatly exceeded by careful cultivation and manuring. A barrel of fruit will yield from 6 to 7 gallons of juice, and each gallon of sound, ripe juice contains from 12 to 15 ounces of citric acid.

The tree is subject to blight, which causes much trouble and materially affects the yield of fruit. No efficient remedy has as yet been found for this evil. With better cultivation and manuring, I have no doubt, this would be remedied, as only the weak and sickly trees appear to suffer.

The fruit when ripe falls to the ground and is collected by women and children and carried to the works, where it is measured by an overseer, who credits each person with the amount collected each day; and on Saturday the quantity collected by each gatherer is paid for at the rate of from 6 to 12 cents per barrel, according to the scarcity of the fruit and the distance of carriage.

The produce exported from a lime plantation is as follows: Raw and concentrated lime juice, green and pickled limes, and essential oil.

Raw lime juice is simply the juice from good, sound, ripe fruit carefully preserved in casks. For the best quality the limes are crushed between the rollers of a mill. Old cane mills are usually employed for this purpose. The first two rollers are carefully adjusted to admit the lime; the second and third usually extract all the juice, which is then run into casks and is ready to ship. Most of the raw lime juice is sent to the English market.

In the manufacture of concentrated lime juice the crushing is done in the same manner as for raw lime juice. The fruit for concentration is not selected as for raw lime juice. On plantations where raw is manufactured the fruit which is unfit for manufacturing into raw lime juice is crushed and manufactured into concentrated lime juice. This process consists in boiling the juice in open pans, such as are used in the manufacture of muscovado sugar, until it is reduced to from six-eighths to one-tenth of its volume; it is then a black viscid fluid containing from 80 to 100 ounces of citric acid per gallon. When the juice has been concentrated to the desired strength, it is run into second-hand beer casks and shipped principally to the New York market.

rt trade in green limes is very small, and is not increasing; the y which is shipped goes to the English market. The fruit is cted, picked from the trees, wrapped in paper, as is usually done , packed carefully in crates, and shipped.

form in which the fruit is exported consists in selecting good, imes and placing them in casks, over which is poured salt water ine. The cask is then made perfectly tight and exported. ved in this manner are invariably sent to Boston. The brine nged frequently during the process before the fruit is properly ie quantity exported in this manner is very small, and, like the en limes, is not increasing.

get figures showing the quantity exported in this manner, but umber of barrels or casks must be very few.

oil, another valuable product obtained from the lime, is made e Montserrat Company's estates and on a number of estates There are two kinds of essential oil of limes: the handmade, most valuable; the other, an oil procured by distillation. The ommands a much better price, as its perfume is not affected by ssary in distillation. The common mode adopted of extracting the lime consists of the use of a shallow concave metal plate n ordinary saucer, in which are studded a number of blunt copom the center of which there is a tube, in which the oil runs as m the rind of the lime. The tube serves as a handle, and the ly and quickly rolled over the blunt copper spikes until all re burst, and the oil escapes and runs into the tube. When ll, the oil is poured into bottles and securely corked. Women employed at the work, and they select only the finest fruit, the greatest quantity of oil. The limes so used are then put nill for the manufacture of lime juice. When the bottle is full, to stand for some time until the water and other impurities oil is then carefully drawn off and filtered as it is run into r vessels ready for export. Most of the oil exported from nanufactured by distillation from the lime juice which leaves is very much inferior to handmade. It is chiefly employed now soaps and in the manufacture of common essences and perfumes. her modes adopted of procuring essential oil from limes; but, ot generally adopted by the majority of manufacturers either in Montserrat, I do not think it necessary to describe them.

no doubt but that great improvements could be made both in on of the limes and the manufacture of its products if more thods were adopted, but as long as the present way pays there f any improvements. The great majority of those engaged in lack capital and are unable to make the improvements they see d, being unable to borrow, continue to run in the old grooves ustry becomes unprofitable and they are forced to yield to lands which are not so rich, but which are cultivated by men who have the energy and capital to make inferior lands yield better than these islands, which are so well adapted for the cultivation of the lime.

There are no local buyers in any of these islands; consequently manufacturers ship their produce to either the English or New York market. The price is about the same in both places, but I am told the results from New York were slightly better than those from England. For the last two years many of the Dominican shippers have been sending their produce to the English market, owing to the New York purchasers having deducted from the sales the cost of freight and other charges, which formerly were paid by the purchaser.

The average shipments from Montserrat for the last five years were as follows: Raw lime juice, 800 puncheons of 120 gallons each; concentrated, 200 casks of 54 gallons each; green limes, 1,000 boxes; pickled limes, 300 barrels; essential oil, 2,500 pounds.

SAMUEL GALBRAITH,
Vice-Consul.

UNITED STATES CONSULATE,
Antigua, July 20, 1892.

GERMAN FOREIGN TRADE.

REPORT BY CONSULAR CLERK MURPHY, OF BERLIN.

Table showing the importations into and exportations from the German customs territory during the year 1891.

Articles.	Imports.		Exports.	
	Quantity.	Value.	Quantity.	Value.
	100 kilos.	*Marks.*	*100 kilos.*	*Marks.*
Waste materials, manures, rags, etc	5,755,902	55,535,000	1,267,887	11,335,000
Cotton and cotton wares	3,059,177	311,939,000	785,262	235,285,000
Lead and lead wares	186,782	4,950,000	325,457	10,040,000
Brush and sieve makers' wares	8,222	3,380,000	16,048	14,551,000
Drugs, chemicals, and colors	9,122,792	242,496,000	5,214,928	251,952,000
Iron and iron wares	3,792,524	48,933,000	12,133,870	277,092,000
Earths, ores, precious metals, asbestus, and asbestus wares	28,742,495	375,998,000	31,247,983	209,744,000
Flax and other vegetable spinning stuffs, with exception of cotton	2,209,804	95,428,000	709,382	40,037,000
Grain and other agricultural products	49,132,961	804,776,000	6,541,278	132,007,000
Glass and glass wares	131,471	9,351,000	928,798	38,548,000
Hair (horse, human, etc.), feathers, and bristles	120,946	45,982,000	42,431	26,229,000
Hides and skins	983,836	144,555,000	366,717	70,762,000
Wood and wooden ware, etc	36,670,719	230,244,000	10,533,789	144,433,000
Hops	23,622	7,485,000	102,161	27,231,000
Instruments, machines, and vehicles	482,846	40,390,000	1,137,742	131,357,000
Calendars	520	114,000	590	130,000
Caoutchouc, gutta-percha, and wares thereof	55,085	35,199,000	39,720	27,483,000
Ready-made clothing and body linen, also millineries	4,107	10,607,000	76,976	125,467,000

the importations into and exportations from the German customs territory during the year 1891—Continued.

Articles.	Imports.		Exports.	
	Quantity.	Value.	Quantity.	Value.
	100 kilos.	*Marks.*	*100 kilos.*	*Marks.*
wares	430,061	57,461,000	297,036	61,053,000
ares, etc	7,814	46,116,000	82,597	88,509,000
r wares	105,775	54,258,000	150,998	162,255,000
and other linen wares	177,571	31,007,000	181,164	33,975,000
	1,122	101,000	12,471	998,000
c articles	41,100	30,493,000	140,068	93,423,000
iquors, etc	12,908,146	769,565,000	17,413,266	490,633,000
pecified and fats	4,915,547	155,748,000	1,100,329	31,551,000
ares	226,000	8,866,000	1,457,375	90,399,000
	2,951	1,355,000	5,359	3,866,000
	8,123,074	83,639,000	247,188	6,528,000
s	56,876	184,326,000	70,371	202,834,000
s	12,707	2,379,000	47,592	9,422,000
	36	13,000	953	334,000
res	7,784,168	43,799,000	5,415,661	25,500,000
tc	123,111,485	113,273,000	110,550,714	150,879,000
res	16,018	5,640,000	12,979	4,820,000
nd asphalt	1,523,116	23,812,000	564,626	7,634,000
al products not otherwise	1,027,090	93,896,000	93,037	9,684,000
etc	1,595,973	5,734,000	2,915,422	34,090,000
	2,831,034	232,526,000	212,232	21,466,000
uslin, etc	6,992	1,326,000	4,838	974,000
ares	1,893,055	401,846,000	705,186	345,746,000
s	81,519	3,677,000	747,005	37,727,000
	91,711	17,188,000	13,484	4,106,000
red wares	1,919	716,000	57,910	11,817,000
	307,456,671	4,836,122,000	213,970,880	3,703,846,000
*		4,273,000,000		3,410,000,000

* Estimated.

GEORGE H. MURPHY,
Consular Clerk.

STATES CONSULATE-GENERAL,
Berlin, August 10, 1892.

PORT AND TRADE OF ROUEN.

REPORT BY CONSUL WILLIAMS.

of 706,500 francs was expended in 1891 out of the appropria- ,000 francs contributed by the chamber of commerce, the de- d the city of Rouen for repairing the dikes.

g time the bureau of navigation has studied the subject of light- nel of the bay of the Seine and made attempts to navigate the ght. A decree of the minister appropriated a credit of 100,000 curing sixteen luminous buoys for lighting the channel. These placed in position and their practical utility tested.

The amount of 440,000 francs was expended upon the equipment o port of Rouen, chiefly in dredging and improving the facilities for lo and discharging vessels. The tonnage of this port, constantly and ra increasing from year to year, indicates that the equipments of the port its facilities for handling and transmission by rail or canal have bee preciated by shippers, and that the difficulties of navigating the Seine been overcome. Ships arrive here daily from the most distant ports o globe, while regular lines ply between Great Britain, the ports of nor and southern Europe, and this port.

The direct imports from the United States to this port consist o few articles. These staple commodities vary each year according t stern requirements to supply the deficiency of crops in France or th quirements of manufacturers, as they are principally raw materials, to only the labor of cultivation or excavation has been applied.

Paris is the wholesale market which supplies the rest of the country the few articles of American manufacture introduced into France. A these agricultural implements and sewing machines take the lead and an acknowledged superiority over all others. Tinned American vegetables, oysters, clams, etc., are ordered from Paris and seldom k stock.

The importation of petroleum is large and increasing; but the far by their influence, subject it to a high tariff in the hope of lighting F with rape-seed oil.

Statistics would indicate that the exports from this consular distric fallen off during the last year, while in reality they have increased. apparent discrepancy is owing to the fact that Roubaix, Lille, and Dun contributing to the list of a portion of the year 1891, have since bee tached.

The principal increase has been in the item of laces and tulles. articles are fashionable, popular, and cheap. The pattern, style, and terial in vogue are subject to much change, and this fact seems to dete manufacturers from competing for this trade. Great ingenuity and sk exercised in this branch of manufacture. A very small quantity of ma is required, the machinery, men, and women employed work long h and the coal consumed is near the works; all of these circumstances e the manufacturers to offer these goods at a very small price.

The French, as I have shown in a former report, took the first st this manufacture against great opposition and built it up at the peril of lives.

CHAS. P. WILLIAMS,
Consu

United States Consulate,
Rouen, August 3, 1892.

TRADE AND COMMERCE OF MALAGA.

REPORT BY CONSUL NEWSON.

ess matters during the past year there has been but little change at of 1891. The season, however, has been especially marked s rains, lasting off and on for some thirty days, a longer period cter than has ever before been known in this region; but no se- have occurred, nor have the crops been affected in this vicinity, Almeria the grapevines have been affected by mildew, which reduce the yield. The health of the city and district continues eneral improvements in Malaga seem to be the order of the day.

ALMONDS.

he fiscal year ended June 30, 1891, 29,439 boxes of almonds ed to the United States, and during the fiscal year ended June ,363 boxes were shipped, being an increase of 18,924 boxes over r 1891. Owing to the high winds and the rains while the trees blossom in the spring, the embryo crop was materially injured, will be a short yield this year.

GRAPES.

l year ended June 30, 1891, showed a shipment of 256,387 apes from this consular district to the United States. During ar ended June 30, 1892, 204,219 barrels were exported, leaving f 52,168 barrels during the last fiscal year.

the yield of grapes in and about Malaga was very good, but at crop was injured by the overflow of the vines, so that the decrease er the year before (1890) was 42,126 barrels. H. F. Fisher, nt at Almeria, writing of the present crop under date of June 15,

> e ago there seemed to be every prospect of a very large crop this year; but any districts in which extensive vineyards are situated have suddenly been dew, so that the outlook is very gloomy at present, and the crop, which every- l would reach about 1,200,000 barrels, may not amount to 500,000 barrels. situated in the higher districts have fortunately not been attacked, so the num- entioned may be expected, which means a decrease of about 300,000 barrels last year. The shipments to the United States may, however, be about the

s in the vicinity of Malaga look exceedingly well and bid fair good crop, and, as they are mostly of American graftings, it is contemplate the future grape culture of this region.

BRANDY.

has been made by one of our merchants to introduce Spanish the southern section of America (New Orleans) and with some

show of success, as 50 cases were shipped for the fiscal year 1891
cases for the fiscal year 1892, being an increase of 80 cases.

IRON ORE.

The amount of iron ore exported to the United States for the fi
ended June 30, 1891, was 58,652 tons; for the year ended June
53,303 tons, or a decrease of 5,349 tons. This ore is produced by
40 and 50 cents per day and is conveyed to America at a very lo
that it comes in competition with our own ore and tends to depre
wages of our laborers.

LEMONS.

As the Malaga lemons ripen quicker than the Californian articl
last year was very warm in the United States, there was a great de
Spanish fruit for lemonades and for other purposes; hence there
crease over the fiscal year of 1891 of 16,426¼ boxes.

LEAD.

The decrease in the shipment of lead has been 20,112 pigs, 23
having been shipped for the fiscal year ended June 30, 1891, and
the fiscal year 1892.

ORANGES.

There was no shipment of oranges at all last year and only 1,
the year before, the Italian and Californian article supplying the n

OIL OF GERANIUM.

A new industry has sprung up here which seeks a market in th
States, that is, the distillation of oils and essences from flowers.
large factory here used for this purpose, and acres of geraniums
flowers are utilized. The first shipment of the oil of geranium
this year.

PALM-LEAF HATS.

These articles are manufactured from palms which grow in thi
and quite a trade now exists with the United States. During the
ended June 30, 1891, 1,028 bales were exported, while 1,069
shipped during the fiscal year ended June 30, 1892, an increase of
The hats are taken to New York, bleached, remodeled, and sold
price. The trade is increasing.

RAISINS.

Raisins go up or down with the fluctuations of grapes. If grapes
there is a less shipment of raisins. The falling off of exportation
last year was 30,552 boxes, only 39,904 boxes being shipped to
1,000,000 boxes exported in 1884 and 70,456 boxes transported to t
States last year.

WINE.

arly part of 1892 the shipments of wine to France were very cipation of the enforcement of the French tariff law, which laid upon this article. For the fiscal year ended June 30, 1891, ,960 gallons of wine were shipped to the United States, while year ended June 30, 1892, only 25,900 gallons were exported, ease of 3,060 gallons for the last fiscal year.

EXPORTS TO THE UNITED STATES.

wing table shows the quantity of articles exported from the con- of Malaga to the United States for the fiscal years ended June l 1892:

Articles.	1891.	1892.	Increase.	Decrease.
boxes...	29,439	48,363	18,924	
bags...	100			100
do......	527	12		515
cases...	50	130	80	
boxes...	80	50		30
bags...	10	52	42	
mats...	1,515			1,515
barrels...	256,387	204,219		52,168
tons...	58,652	53,303		5,349
quarter boxes...	42,770	59,196	16,426	
pigs...	23,349	3,237		20,112
boxes...	1,981			1,981
bales...	59	109	50	
cases...		125	125	
tin cases...	310	10		300
cases...		1	1	
bales...	1,028	1,069	41	
cases...		87	87	
boxes...	2,371	1,271		1,100
do......	70,456	39,904		30,552
cases...	310	338	28	
bales...		9	9	
bags...		5	5	
bales...		28	28	
cases...	43	29		14
gallons...	28,960	25,900		3,060

e of merchandise sent from this district to the United States for ar ended June 30, 1891, was $1,387,657.33; amount for the 892, $1,237,348.13; decrease, $150,309.20. This decrease is ely owing to the loss of grapes by the destruction of the vines eased growth of the fruit in California.

INCREASE OF INVOICES.

tanding the vexatious obstacles to trade here, the invoices in increased this year over last and over several preceding years. for 1891 was 467; for 1892, 505, an increase of 38. In the has been a decrease of 143 invoices.

FINANCES.

The finances of Spain are in a very disordered and deplorable and appear to be growing worse. The national debt is over $1,29 and there is now a deficit of $20,000,000 in the treasury. Ex London has been 20 per cent and upward, although it is now lo taxes have been levied upon women and others who sell vegetable result has been riots and bloodshed, both in Madrid and near A in other parts. The fact is, it is hard to see how the people ca further taxation. The minister of finance seems to be aware of t he now talks of a loan of $150,000,000.

MACHINERY.

Most of the flour mills in Spain are furnished with machinery land, France, and Germany, and the amount expended for these ceeds $5,000,000—indeed, close to $6,000,000. Only a few cleaners can be found in the mills. Each year the Spaniards are introduce better machinery, but this is only effected through th efforts of practical men from England, France, and Germany, upon the ground, superintend the machinery, and demonstrate it ness. Here is a wide field for American enterprise.

T. M. NEWSC

UNITED STATES CONSULATE,
Malaga, July 10, 1892.

STREETS AND HIGHWAYS IN THE PUNJA

REPORT BY CONSUL-GENERAL MERRILL, OF CALCUTTA.

Referring to my dispatch dated September 15, 1891, and to D instruction of November 8, 1890, I have the honor to submit th report on the construction and maintenance of streets and road Punjab.

SAMUEL MERRI
Consul-G

UNITED STATES CONSULATE-GENERAL,
Calcutta, June 14, 1892.

PUNJAB ROADS.

[Inclosure in Consul-General Merrill's report.]

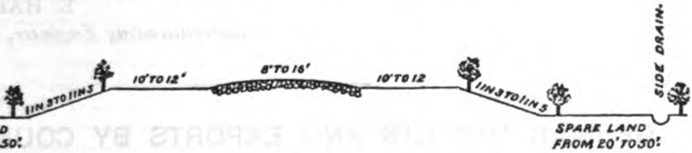
In the Punjab roads are made and maintained from one or more of the follo of revenue: (1) Imperial, (2) provincial, (3) district or local funds, and (4) mu

(1) These are such roads as are made and maintained for the troops and only, or for other military purposes.

this head are classed all kinds of trunk roads made and maintained for traffic
h the province.

ct boards make and maintain such roads as are purely for the benefit of a dis-
are mostly unmetaled. They are the arteries of the main system.

ipal roads are made and maintained for the benefit of the community of a cer-
n the municipal limits fixed by the government.



l of roads designated 1 is vested in the Punjab war department, military works
in the Punjab war department, general branch; of 3, in local boards, called
ttees, composed of members selected and nominated under the district board's
he municipal board, also composed of members elected and nominated under
act.

understood to mean roads passing through important places of public business.
used to be paved with bricks laid on edge dry, the joints being filled in with
treets, however, are now being superseded by metaled roads. The material
roads in the Punjab is (1) stone, (2) kankar, (3) brick ballast.

—This, of course, is the most durable material for roads, and of this again lime-
into a gauge of three-fourths of an inch to 1 inch gives the best results. The
from five to ten years, according to the quality of the stone and the amount of

ar.—Kankar is a natural formation of calcareous deposits found over a great
Punjab at a depth of 3 to 6 feet below the surface in strata varying from 1 to 3
ss. It gives a very smooth surface and is fairly lasting, according to the quality
, the average age being from three to six years in heavy traffic and from six to
ght traffic.

ballast.—This is used where no natural deposits of kankar or stone are availa-
ot much duration but is comfortable when in good order.

f building or maintaining such streets or roads varies considerably in different
rding to local circumstances and requirements. On the average the initial cost
at 6,000 to 10,000 rupees a mile and the cost of maintenance at one-tenth of
This is more for the civil department to answer. The figures 6,000 to 10,000
include the whole cost of road construction. "Ordinary maintenance" costs
es per mile per annum. The renewal of metal is additional to that, according
of the metal.

speaking, the proximity of roads is bound to enhance the price of lands and to
t civilizing influence on the habits and manners of the people.

reets are either paved with bricks on edge or by two coats of kankar metal over
rickbats.

dge pavement is built of small country bricks measuring 8 inches by 5 inches
twelve bricks being required for 1 superficial foot or one hundred and eight per
Dry sand, or *surkhi*, is used for leveling the ground under the pavement and
. The detail of cost of 1 square yard of pavement of bricks on edge is as fol-
ndred and eight bricks, 8.64 annas; sand, or *surkhi*, 2 annas; labor, 4.32 annas;
annas; total per square yard, 1 rupee. The cost of two coats of kankar metal
Kankar, 8.5 annas; consolidating kankar, 1.6 annas; total 10.1 annas. The
t of kankar metal over one coat of brick ballast is: Kankar metal, 4.2 annas;
as; consolidation, 1.6 annas; total, 8.4 annas.

To the above figures should be added the cost of two side drains, which are ma
work, and the cost of which, for both sides, may be put down at 1 rupee per ru

The Roorkee treatise on civil engineering and the treatise on roads by Co
Wilkins, royal (late Bombay) engineers, give very full details.

GANGA RAM, C.
Executive Engineer Lahore Provincial Dep
E. HARVE
Superintending Engineer, Thir

GERMAN IMPORTS AND EXPORTS BY COUNTR

REPORT BY CONSUL-GENERAL EDWARDS, OF BERLIN.

I have the honor to transmit herewith a translation of a clipp
the Berlin Vossische Zeitung of August 9, 1892, in respect to the
isting in the foreign trade of Germany between the trade with i
countries and the entire trade, which I trust may prove of interest.

Table showing the imports and exports of Germany by countries for the year

IMPORTS.

Countries.	Value.
	Marks.
Great Britain	640,500,000
Austria-Hungary	598,500,000
Russia	541,900,000
United States	405,600,000
Belgium	316,900,000
Holland	309,200,000
France	267,100,000
Switzerland	174,200,000
Italy	140,400,000
Brazil	137,700,000
British India	128,700,000
Argentine Republic	75,200,000
Denmark	61,900,000
Chile	61,400,000
Australasia	50,300,000
Sweden	46,100,000
Spain	34,100,000
Roumania	29,400,000
West Africa (exclusive of German protectorate)	21,400,000
Capeland	17,900,000
Portugal	11,300,000
Mexico	10,700,000
Turkey	9,600,000
Peru	5,500,000
Japan	4,700,000
Servia	4,100,000
Greece	4,000,000
All other	164,700,000
Total	4,273,000,000

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* This statement, prepared in the Department, embraces all the information contained in the
tion from the Berlin Vossische Zeitung. It is valuable as being the first published official
kind concerning German foreign trade.

the imports and exports of Germany by countries for the year 1890—Cont'd.

EXPORTS.

Countries.	Value.	Per cent.
	Marks.	
	705,300,000	20
	416,700,000	12.2
	351,000,000	10.3
	258,000,000	7.6
	206,500,000	6.1
	179,600,000	5.3
	150,800,000	4.4
s.	104,800,000	3.1
	94,700,000	2.8
	91,600,000	2.7
	76,400,000	2.2
	53,500,000	1.6
	53,100,000	1.6
	52,400,000	1.5
	34,100,000	1
	32,200,000	0.9
	30,800,000	0.9
ic.	26,100,000	0.8
	21,100,000	0.6
	18,500,000	0.5
	14,300,000	0.4
	8,400,000	0.2
	3,700,000	0.1
nan).	3,200,000	0.1
	3,100,000	0.1
	2,800,000	0.1
	417,300,000	12.9
	3,410,000,000	100

W. H. EDWARDS,
Consul-General.

STATES CONSULATE-GENERAL,
Berlin, August 11, 1892.

NICARAGUAN STATISTICS.

REPORT BY CONSUL NEWELL, OF MANAGUA.

THE DEPARTMENT OF MATAGALPA.

n has been published lately about Matagalpa, Nicaragua, which fiction that I feel called upon to furnish the Department with concerning that section. As this department is the Mecca for grants that come to Nicaragua, as it will soon become the coffee-egion of this Republic, and as there are many in the United ng knowledge upon this subject, an unmistakable benefit will be y making these facts public.

artment of Matagalpa is a three days' ride from Managua by reta. The capital of the department, Matagalpa, is a place of some 3,000 inhabitants, of a mixed race, Spanish and Indian; it has an altitude of 2,200 feet, and lies in a valley surrounded by hills, which slope 3,000 feet above the town. The thermometer never reaches a greater degree of temperature than 70° F. at midday, the mornings and evenings being 10° cooler. A small river runs through the valley and supplies the town with an abundance of pure, wholesome water.

The winter, or rather the wet season, begins in the month of June, ending with November. Through the dry season there are frequent showers. The climate is most delightful and healthful. Some of the residents who have lived in California consider it superior to that of that State.

For fertility of soil it is unexcelled; the land will grow almost everything. Coffee, cacao, sugar cane, tobacco, corn, rice, and wheat do well without much labor expended upon them. All vegetables flourish. The tropical fruits—bananas, piñas, mangoes, etc.—are seen in luxuriant abundance. An effort on a limited scale was made to cultivate grapes, but, the proper means not being adopted, it did not succeed. Cattle-raising is another industry being carried on extensively, from which a number of fortunes have been accumulated.

However, the main industry of this department is coffee-raising. It is estimated that there are now under cultivation 5,000,000 trees. These trees are not all producing, as many of them are only one and two years old. A coffee tree does not begin to yield before its third year, and then not to its full extent; four years is supposed to be the full growth of a coffee plant. Coffee trees, at the lowest estimate, in this country yield a pound, though I am informed of instances where the trees yielded as high as 5 pounds. In two years' time at least Matagalpa will have for exportation 5,000,000 pounds, or, in other words, 25,000 tons, of coffee.

The question that concerns the inhabitants of Matagalpa is, how are they going to get their coffee to market? Now they have to transport the produce on the backs of mules or in carretas drawn by slow, sleepy oxen. A concession for a railroad through this section was granted last year, but the parties failed to carry out the project, much to the disgust of the Government and to the chagrin of the citizens of Matagalpa. It was proposed by the terms of the concession to build the road from Momotombo, a point on the western side of Lake Managua, to some point on the Rio Grande River where vessels could ascend. At Momotombo connection was to have been made with the Government line which runs to Corinto, on the Pacific side, so that there would have been a continuous road from ocean to ocean. To facilitate the building of this railroad the Nicaraguan Government gave a land grant of 1,000,000 manzanas (nearly 2,000,000 acres).

According to my mind, the advantages of this road are not correctly understood. A road tapping solely the district of Matagalpa would not pay, but one having steamer connection, by means of the Rio Grande River, with New Orleans and New York I am confident would be a financial success. Besides 25,000 tons of coffee annually to be exported, there would be thousands of bunches of bananas, as this road would tap one of the best

cts in Central America. Furthermore, this road would aid in
ent of the mining districts of Matagalpa—Jinotega and Nuevo
the ores from these departments would seek foreign markets
l.

l from Momotombo to the Rio Grande would not have to de-
on the transportation of coffee, bananas, and ores. By proper
much of the freight that finds its way to Nicaragua via the
anama could be diverted to this road, for the merchants here
to ship direct than by the roundabout way of Panama. This
hould be able to control this traffic, because it would be one
the United States and Europe than by the present means of
on. The time from New Orleans to the terminus on the Rio
t not to be more than four days; two days would be ample
port the freight to the principal cities in the interior and to
the Pacific coast. It might be important to have a line of
he western coast, running as far north as Champerico, Guate-
far south as Punta Arenas, Costa Rica. These steamers would
ad to secure the carrying of the freight and produce of Guate-
ras, Salvador, Nicaragua, and Costa Rica.

nt of freight arriving at Corinto during the year 1891 was
and at San Juan del Sur, the second port of Nicaragua on the
was 1,225, making a total of importations received at these
55 tons. The value of the importations received at San Juan
ing the year 1891 was $382,724.84. I have given these statis-
the sources from which a road to Matagalpa might derive a

IMMIGRATION LAW.

tion with this report I deem it important to cite the immigra-
icaragua, about which I have received numerous inquiries, and
en misquoted and misunderstood. I also make, as part of this
opsis of the law which grants a premium to the planters of
ner statistics governing the cultivation of coffee.

o induce immigration, the Republic of Nicaragua has issued a
ves to each married immigrant 120 manzanas of land and to
ed immigrant 60 manzanas. A manzana is a piece of land
are, equivalent to a little less than 2 acres. The immigrant,
ntage of this law, must become a naturalized citizen of Nicara-
persons who become citizens of Nicaragua use the public and
ds with the same rights as the natives and are exempt for ten
unicipal duties and military service, save when the liberty and
f the country is endangered. The grantee can not acquire
the lands ceded under this law unless he cultivates at least one-

desiring to remain citizens of their own country the Govern-
he same concession; but the immigrant does not acquire the

property, but only a leasehold interest, and on the same terms as t
come to the country for the purpose of becoming citizens, but wh
conform to the law in the required time. This right does not exten
ten years and can not be transferred by any hereditary title if t
grant has cultivated less than one-half of the land ceded, whether
be in the possession of the original grantee or of a third person.

In order to enjoy the privileges conceded by this law, the i
must secure a passport either from a minister or from a consul of
resident in the country from which he comes.

PREMIUM FOR COFFEE-PLANTING.

For the purpose of inducing persons to cultivate coffee trees,
ernment has promulgated a law which gives to each person planti
trees a premium of 5 cents for each tree planted when the number
fall below 5,000 plants. Two and one-half cents of the premium is
the trees are two years old and the remainder when the trees begin
It is claimed by those who are engaged in the cultivation of coffee
400 to 500 trees can be planted upon an acre of land. Coffee tre
purchased for setting out at the rate of $5 per thousand. It is
that it will cost from $6 to $25 to clear a manzana of land. Th
expended for this purpose will depend largely upon the quantity
and undergrowth upon it. The wages of laborers on coffee plant
40 cents per day. It is said that 100 pounds of coffee can be pro
$5. The selling price of the same quantity for the past five years
from $16 to $25, so that a handsome revenue is derived by those
in this industry.

Nicaragua divides her lands into three classes: First, grazing
price of which is 80 cents per manzana; second, agricultural land,
of which is $1.50 per manzana; and, third, those lands that are w
running streams or naturally irrigated, the price of which is $2.
any of these lands mentioned contain timber suitable for building
or dyewoods, there is added to the price already named the sum o
per manzana.

Many persons who have addressed me regarding the advisability
to Nicaragua seemed to be possessed with the idea that very little
any, was necessary in the preparation of a coffee hacienda. Und
cumstances would I advise a person to come here to become a coff
with less than from $3,000 to $4,000. A person should have suffic
tal to live upon while he is waiting for his coffee trees to grow, w
be a period of four years.

BRIGHT OUTLOOK FOR NICARAGUA.

A great future is now beginning to dawn upon Nicaragua. Th
rains of this year will, I am confident, give her a greater yield of c
she has ever known before. The building of the canal will brin

housands of dollars, and many immigrants will wend their way advantage of the liberal inducements that this Government

ents of many kinds are being made in the country, such as the magnificent market buildings, edifices that would be a credit older cities. The different large cities are introducing water ranada is constructing a tramway from the railroad station to

of fine residences have been erected within the past two years, anagua, but in Granada, Masaya, and Leon. The more marked , however, have been in Managua.

WILLIAM NEWELL,
Consul.

TATES CONSULATE,
Managua, July 25, 1892.

COMMERCE OF ANGOLA IN 1891.

ORT BY COMMERCIAL AGENT CHATELAINE, OF LOANDA.

wing table shows the imports and exports of Angola for the

Ports.	Imports.		Exports.	
	Value.	Duties.	Value.	Duties.
	$2,720,879	$529,100	$2,050,000	$67,250
	1,391,750	360,160	1,400,000	41,000
	755,000	41,000	550,000	(*)
	410,000	46,000	129,000	7,100
	5,477,629	976,260	4,129,000	115,350

*Ambriz had no duties on exports in 1891.

ls are exclusive of imports and exports of the Kongo district, vas free until the Brussels conference. There being no tariff ouses, neither were there statistics of imports or exports.

Table showing the principal articles of import.

Articles.	Loanda.	Benguela.	Ambriz.	Mossamedes.
	$650,000	$690,000	$270,000	$45,000
	84,000	92,000	30,000	13,000
	75,000	70,000	50,000	3,500
ware	350,000	150,000	100,000	100,000
	....	50,000	....	....

ods and gunpowder are chiefly imported from England; guns n and France; blankets, wine, and olive oil from Portugal. nes next to England in imports.

Table showing the principal articles of export.

Articles.	Loanda.	Benguela.	Ambriz.	Mossamedes.
Palm oil	$41,000	....	....	....
Rubber	460,000	$1,100,000	....	....
Coffee	1,300,000	....	$470,000	....
Wax	72,000	145,000	....	....
Palm kernels	35,000	....	....	....
Ivory	1,750	47,000	....	$1,200
Cotton	4,000	3,200	....	22,000
Orchilla weed	9,500	8,000	....	....
Gums	3,300	....	....	....
Almeidina	....	....	....	2,200
Cattle	....	....	....	19,000

Many other articles are exported, but not in quantities worthy of mention. Rum, however, is exported from all the above ports in considerable quantities.

The almeidina mentioned above is rubber from the *Euphorbia arborescens*, which is gathered only by one trader and exported at Mossamedes alone to Portugal.

Table showing the imports from the United States.

Articles.	Loanda.	Benguela.	Ambriz.	Mossamedes.
Flour	$900	$14,000	$4,600	$3,300
Kerosene	18,000	650	850	1,900
Guns	....	100	4,500	....
10 per cent	19,000	....	....	180
20 per cent	1,000	....	10	1,500
25 per cent	....	....	....	300

In addition to the above, Mossamedes shows $185 of implements, $65 of beer, and $190 of cotton goods, and Ambriz $10 of molasses. The total of declared American imports into Angola is therefore $71,310.

The real imports from the United States into Angola in 1891, beyond any doubt, exceeded $150,000. Most of the flour, all of the kerosene, and much of the timber, machinery, and manufactured articles used in Angola are of American origin; but, having been purchased of English, German, or Portuguese firms, they appear in the official returns as imports from those countries. I know of about $10,000 worth of agricultural machinery that was imported in 1891 from the United States via England and which does not appear in the statistics as imports from the United States.

One proof of the difference between real and declared imports is found in kerosene. It is an established fact that all of the kerosene used in Angola is of American origin, yet the declared imports mention as such only $20,400, while the total declared imports are $27,600, the difference being put down as German merchandise. The total imports of flour are $98,700, most of which, if not all, is American; yet only $22,800 are credited to the es. The rest is said to be imported from England or Portugal. nber is not mentioned at all among the imports of 1891. The the three important American missions established in Angola d a place in the above table, although most of it is imported ited States.

orts, none are mentioned as destined for the United States; but ubt, find their way thither by way of England, chiefly rubber, and ivory.

erchants of Angola are very anxious to have direct commercial n the United States, and there is no article of American export not, in limited quantities, find a market in Angola, provided liable American house in this province.

rican firm manufacturing agricultural machinery has sent out neer to visit the plantations and distribute catalogues, and as a step American machinery is sure to supersede the English on ons, in spite of the wretched means of communication and the the exchange.

cursed with an enormous and ever-growing production of rum.

ble showing the number, tonnage, etc., of vessels entered in 1891.

Ports.	Steamers.		Sailing vessels.		Tonnage.
	Portuguese.	Foreign.	Portuguese.	Foreign.	
					Cu. meters.
	28	16	4		27,070
	79	58	10	15	217,081
erchant)	35		2		65,066
nt)	55	1	8		105,370
	3	6			5,969
	28	5	4	6	62,885
	11				2,646
	31	60			123,507
	15	2			5,442
		53			54,060
	37				9,016
	24	31			94,596
	14	1			4,425
		94		9	115,548
	41	1	2		15,792
	40	37		1	117,673
		3	1		4,200
				1	90
war	149	29	7		74,560
nt	292	339	24	32	955,876

Table showing the number, tonnage, etc., of vessels entered in 1891—Continued.

Ports.	Horse power.	Crews.	Guns.	Passengers.	Mail bags.
Loanda:					
Men-of-war	20,380	4,545	183	167	28
Merchant	64,513	6,917	148	5,951	903
Novo Redondo (merchant)	25,470	2,411	35	186	150
Benguela (merchant)	40,073	3,985	56	735	366
Mossamedes:					
Men-of-war	5,260	909	47	1	2
Merchant	22,733	2,299	33	1,275	339
Ambriz:					
Men-of-war	920	788	24	69	5
Merchant	44,351	4,386	97	543	255
Ambrizette:					
Men-of-war	2,950	1,273	42	129	18
Merchant	21,071	1,872	57	277	47
St. Antonio:					
Men-of-war	3,040	2,430	78	140	28
Merchant	30,612	3,200	56	863	211
Landana:					
Men-of-war	1,370	1,005	35	75	10
Merchant	40,785	3,614	105	156	88
Cabinda:					
Men-of-war	4,490	3,138	96	446	75
Merchant	42,730	4,928	84	1,207	284
Lobito:					
Men-of-war	2,730	552	24	....	....
Merchant	....	10	....	....	....
Total:					
Men-of-war	41,140	14,190	529	1,027	166
Merchant	332,338	33,622	671	11,193	2,643

Table showing the number, tonnage, etc., of vessels cleared in 1891.

Ports.	Steamers.		Sailing vessels.		Tonnage.
	Portuguese.	Foreign.	Portuguese.	Foreign.	
Loanda:					*Cu. meters.*
Men-of-war	28	16	3	....	26,496
Merchant	79	60	7	16	219,123
Novo Redondo (merchant)	35	....	2	....	65,066
Benguela (merchant)	55	1	8	1	104,856
Mossamedes:					
Men-of-war	3	6	....	....	5,969
Merchant	28	5	4	5	62,257
Ambriz:					
Men-of-war	11	....	....	....	2,646
Merchant	31	58	....	....	120,501
Ambrizette:					
Men-of-war	15	2	....	....	5,442
Merchant	....	53	....	....	54,060
St. Antonio:					
Men-of-war	37	....	....	....	9,016
Merchant	24	31	....	....	94,596
Landana:					
Men-of-war	14	1	....	....	4,425
Merchant	....	95	....	9	216,835

ving the number, tonnage, etc., of vessels cleared in 1891—Continued.

orts.	Steamers.		Sailing vessels.		Tonnage.
	Portuguese.	Foreign.	Portuguese.	Foreign.	
					Cu. meters.
....	41	1	2	....	13,035
....	40	38	....	1	121,437
....	....	3	1	....	4,200
....	....	....	....	1	90
ar........	149	29	6	....	71,229
....	292	341	21	33	958,821

orts.	Horse power.	Crews.	Guns.	Passengers.	Mail bags.
....	20,390	4,466	182	144	2
....	64,802	6,962	150	3,684	683
rchant)........	25,470	2,411	35	1,746	138
)........	40,073	3,930	56	971	278
....	5,260	909	47	36	1
....	22,733	2,291	33	643	289
....	920	788	24	25	1
....	43,351	4,320	95	282	140
....	2,950	1,274	42	8	9
....	21,071	1,870	57	185	33
....	3,040	2,433	78	164	28
....	30,612	3,205	56	813	161
....	1,370	1,005	35	88	11
....	41,635	3,650	90	178	34
....	4,250	3,157	101	516	72
....	43,127	4,888	80	314	187
....	2,730	552	24	....	....
....	....	10	....	....	....
ar........	40,910	14,584	533	981	124
....	332,874	33,177	652	8,816	1,943

n navigation on the Quanza River in 1891 was as follows: red, 23; steamers sailed, 23; passengers entered and sailed,

er of contract laborers shipped in 1891 from Angola to St. Principe was 1,768.

ing trade was as follows in 1891: Total of vessels which called s, 3,414; total tonnage, 102,746 cubic meters.

The following table shows the export price list per kilogram for the ports of Loanda, Benguela, and Mossamedes for July, 1892, used as a basis for determining amount of export duties:

Articles.	Approximate price.	Articles.	Approximate price.
Cotton	$0.10	Gum:	
Oil:		Copal	$0.28
Palm	.06	Yellow	.20
Fish	.06	White—	
India rubber	.90	Picked	.08
Coffee	.23	Common	.04
Cotton seed	.01	Ivory:	
Wax	.45	De lei	3.60
Palm kernels	.03	Meão	2.50
Hides:		Escravelho	1.20
Dry	.08	Miudo (small)	.50
Salt	.15	Musua root	.04
Hippo ivory	.30	Dry fish	.06
Baobab fiber	.01	Tobacco:	
Peanuts	.04	Leaf	.10
Sesame seed	.05	Prepared	.60
Tobacco	.10	Orchilla weed (dye)	.06
Smoking hemp	.30		

HELI CHATELAINE,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Loanda, June 29, 1892.

MEXICAN MARITIME MOVEMENT.

TRANSMITTED BY MINISTER RYAN, OF MEXICO.

[Translation.—From the Diario Oficial of July 14, 1892.]

Table showing foreign shipping by ports in fiscal year 1890–'91.

Ports.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Acapulco	53	88,903	10	9,097	48	74,343	9	7,959
Altata	2	270	3	835	1	62	4	1,624
Compeachy	44	91,837	26	6,591	30	52,514	28	6,644
Coatzacoalcos	1	1,200	28	7,664	5	5,652	46	12,227
Frontera	90	193,628	22	5,737	38	66,524	25	6,370
Guaymas	2	402	11	6,130	1	194	5	3,182
Isla del Carmen	6	4,214	122	34,552	6	5,038	137	38,583
La Paz	2	1,575	4	450	....	....	5	2,979
Magdalena Bay	....	....	....	....	1	677	....	....
Manzanillo	2	1,994	2	639	2	417	2	780
Mazatlan	27	50,840	15	5,637	26	50,942	7	3,675
Progreso	190	323,668	218	16,244	199	331,031	203	16,358

howing foreign shipping by ports in fiscal year 1890–'91—Continued.

	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
....	4	3,644	6	3,760	3	3,362	5	1,865
....	1	208	5	1,617	....	....	9	1,676
....	....	....	....	....	....	....	1	708
....	2	980	15	13,062	2	362	13	11,713
....	14	19,450	3	1,369	11	15,747	3	1,727
....	105	171,205	50	11,733	96	154,418	43	10,484
....	152	49,442	6	139	139	46,834	4	85
....	5	8,858	1	1,724	4	6,715	1	1,724
....	37	71,922	21	3,422	45	85,476	27	6,495
....	243	446,853	64	19,198	228	445,832	58	16,072
....	982	1,531,096	632	149,600	885	1,346,140	635	152,870

Table showing domestic shipping by ports in fiscal year 1890–'91.

	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
....	37	63,223	17	904	44	76,822	18	1,402
....	99	24,382	37	4,326	100	24,444	34	2,993
....	105	25,398	516	16,714	108	27,231	549	17,612
....	100	25,388	24	3,046	98	22,305	15	1,219
....	148	32,108	117	5,234	140	31,755	112	3,192
....	128	31,545	185	5,848	130	31,615	187	8,404
....	139	33,243	228	12,071	137	30,812	208	6,652
....	86	41,021	199	7,979	88	41,219	224	8,090
....	1	677	....	....	....	....	....	....
....	59	56,129	13	1,251	59	57,641	11	1,020
....	138	95,607	214	11,173	138	95,204	233	13,539
....	201	263,904	155	8,430	188	249,967	148	10,058
....	24	33,232	6	72	24	33,868	8	96
....	24	31,950	3	654	24	30,826	2	446
....	63	75,716	124	4,500	64	75,925	119	4,819
....	28	22,089	29	1,748	28	22,089	27	1,017
....	76	9,081	187	2,202	77	9,091	192	2,789
....	14	18,120	1	361	14	18,325	1	361
....	29	9,971	10	1,445	38	29,863	13	1,811
....	51	18,412	12	336	63	19,872	11	314
....	24	32,380	....	....	24	32,020	....	....
....	43	17,377	49	3,302	38	9,368	52	2,759
....	148	46,132	137	8,969	168	60,388	150	12,602
....	1,765	1,007,085	2,263	100,565	1,792	1,030,650	2,314	101,195

Table showing domestic shipping by customs districts in fiscal year 1890–'91.

Customs districts.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Agiabampo	41	2,529	76	2,484	40	2,475	74	2,406
Alvarado	3	593	33	1,493	4	920	27	1,593
Celestum	4	839	376	8,677	4	839	365	7,473
Cozumel	2	1,600	87	1,160	2	1,600	94	1,160
Chamela	8	556	1	300	8	556	2	429
Champoton	4	152	270	4,073	2	76	252	3,150
Dos Bocas	....	....	37	365	....	....	43	392
Isla Aguada	1	38	194	3,706	1	38	194	3,709
Isla de Mujeres	2	865	156	2,777	2	865	152	2,477
Isla María Madre	....	....	36	2,043	....	....	36	2,043
Jonuta	71	3,471	54	1,215	70	3 429	54	1,215
Las Peñas	....	....	42	1,566	....	....	42	1,566
Mulegé	39	3,545	147	1,998	38	3,311	152	2,017
Nautla	5	405	57	1,663	5	405	62	2,536
Palizada	123	5,620	414	10,125	112	4,913	357	8,739
Perihuete	2	64	167	3,963	2	64	168	4,043
Piaxtla	....	....	14	1,344	....	....	13	1,322
San Quintín	25	5,845	1	30	25	5,845	1	30
Santecomápam	....	....	3	41	....	....	2	20
Teacápam	....	....	5	177	....	....	6	140
Tecoanapa	2	3,028	13	510	2	3,028	13	510
Tlacotálpam	47	18,526	71	6,264	47	18,112	64	4,765
Tonalá	2	654	47	3,581	1	210	37	1,042
Topolobampo	....	....	81	1,643	....	....	79	1,563
Zihuatanejo	4	652	4	512	4	652	4	512
Total	385	48,982	2,386	61,710	369	47,338	2,293	54,852

Table showing foreign shipping by flag in fiscal year 1890–'91.

Flag.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
German	64	106,281	49	18,870	50	83,100	48	19,286
Austro-Hungarian	....	....	1	274	....	....	1	274
Danish	....	....	14	4,263	....	....	14	4,111
Spanish	153	384,202	77	5,330	133	310,174	71	4,514
French	40	92,386	14	6,047	39	91,921	16	5,509
Dutch	....	....	....	....	....	....	1	680
English	140	193,530	76	31,101	138	191,206	73	29,366
Italian	....	....	3	1,127	....	....	3	1,168
Mexican	21	6,151	120	6,512	9	3,318	110	5,419
American	519	726,498	191	48,845	473	645,135	192	48,730
Norwegian	42	20,218	72	22,521	40	19,456	86	27,176
Russian	3	1,830	....	....	3	1,830	1	565
Swedish	....	....	15	4,710	....	....	19	6,072
Total	982	1,531,096	632	149,600	885	1,346,140	635	152,870

Table showing domestic shipping by flag in fiscal year 1890–'91.

Flag.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
n	1	1,103	11	4,577	6	8,585	11	4,953
	...	...	10	2,954	...	...	10	3,010
h	50	119,112	27	1,560	48	114,079	24	1,653
	...	...	9	3,237	...	...	7	2,435
	...	...	...	...	...	...	1	654
a	12	14,425	17	6,466	13	15,366	14	4,925
n	1,576	348,771	4,492	125,225	1,585	353,136	4,464	124,934
can	482	561,851	60	11,256	499	581,318	62	9,218
gian	26	9,075	19	5,766	7	3,674	11	3,263
n	3	1,830	...	...	3	1,830	...	...
h	...	...	4	1,234	...	...	3	1,002
Total	2,150	1,056,067	4,649	162,275	2,161	1,077,988	4,607	156,047

ble showing foreign shipping by ports of issue and destination in fiscal year 1890–'91.

s of issue and destination.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Germany.								
n	...	...	1	573	...	...	...	...
urg	65	109,769	20	6,824	52	105,857	24	9,487
Total	65	109,769	21	7,397	52	105,857	24	9,487
Belgium.								
rp	15	31,744	2	1,347	12	30,972	...	...
Brazil.								
	...	...	3	824	...	...	...	...
bé	...	...	1	289	...	...	...	...
	...	...	6	1,959	...	...	...	...
ba	...	...	1	311	...	...	...	...
nbuco	...	...	6	1,761	...	...	...	...
	...	...	2	524	...	...	...	...
rande	...	...	2	492	...	...	...	...
Janeiro	...	...	4	1,103	...	...	...	...
	...	...	2	535	...	...	...	...
Total	...	...	27	7,798	...	...	...	...
Colombia.								
quilla	...	...	2	499	...	...	...	...
ena	...	...	5	1,213	...	...	...	...
	2	2,242	2	613	...	...	...	...
a	52	85,873	...	...	45	74,879	...	...
lla	...	...	1	428	...	...	...	...
Total	54	88,115	10	2,753	45	74,879	...	...
Costa Rica.								
imon	1	1,142	...	...	...	...	...	...

Table showing foreign shipping by ports of issue and destination, etc.—Continued.

Ports of issue and destination.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Chile.								
Iquique					1	1,348		
Valparaiso							1	1,249
Total					1	1,348	1	1,249
China.								
Hongkong					1	1,003		
Macao	2	1,825						
Total	2	1,825			1	1,003		
Denmark.								
American possessions (St. Thomas)			5	1,512				
Ecuador.								
Punta Arenas							5	2,891
Spain.								
Barcelona	34	121,139			22	64,318	3	642
Cadiz	3	8,517					1	266
Santander	2	5,266			1	1,572		
American possessions:								
Baracoa	1	419						
Cienfuegos	1	1,172	1	235				
Habana	21	62,119	72	3,932	33	95,893	65	2,921
Matanzas	1	448			1	883		
Ponce			1	356				
Puerto Rico			2	492				
San Cristobal			1	299				
Santiago de Cuba			1	358				
African possessions (Santa Cruz de Teneriffe)			1	329				
Oceanic possessions (Marquesas Islands)							1	498
Total	63	199,080	79	5,991	57	162,666	70	4,327
United States.								
Baltimore			1	286				
Barataria Bay			1	473				
Boston					10	7,486	1	281
Brazos Santiago			1	339				
Burlington							2	146
California:								
San Diego	246	43,871	6	139	132	39,634	5	101
San Francisco	63	92,326	32	12,735	58	82,320	17	4,028
Camden					1	150		
Cayo Hueso			1	33	1	1,086		
Charleston					1	1,241		
Chester							1	539
Philadelphia	1	150						
Galveston	3	861	5	768	16	19,438	20	1,486
Key West					1	120		
Lake Charles			2	74				
Mobile	11	4,120	8	2,147	9	3,419	9	2,354
Morgan City	1	707					1	69
Norfolk	2	1,962						

owing foreign shipping by ports of issue and destination, etc.—Continued.

and des- n.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Continued.								
	34	17,389	44	7,657	50	60,326	43	8,057
	362	661,157	32	9,915	336	578,420	64	18,998
							1	54
	6	781	11	6,631	12	9,885	10	5,531
			18	3,756	2	1,805	16	3,738
			8	1,332			11	1,654
							3	3,250
			1	483			4	5,052
			22	1,461			2	121
							1	433
					1	1,186	2	981
							1	1,235
	1	428			1	181		
							2	1,761
					2	670		
			1	157			2	1,835
	630	823,752	194	48,386	633	807,367	219	62,177
e.								
	10	24,285	6	2,370	1	2,262		
	12	32,930	3	896	14	37,237	10	3,153
			1	323				
	3	2,952	7	1,917	1	2,217	4	1,286
	11	18,429			12	21,464		
sions :								
			1	347				
ce			1	316				
			4	1,365				
			4	1,358				
Pitre			2	544				
			1	273				
ns (Dakar).			1	278				
	36	78,596	31	9,987	28	63,580	14	4,439
la.								
			1	424				
temala							1	520
			1	424			1	520
.								
			1	355				
ii.								
							1	648
d.								
							1	565
sions :								
			1	212				
			1	259				
			2	471			1	565
as.								
			2	442				
			6	502			1	44
			8	944			1	44

Table showing foreign shipping by ports of issue and destination, etc.—

Ports of issue and destination.	Entered.				Clea	
	Steamers.		Sailing vessels.		Steamers.	
	No.	Tons.	No.	Tons.	No.	Tons.
England.						
Cardiff	16	21,580	15	11,952		
Falmouth						
Glasgow	3	3,784				
Liverpool	76	152,204	15	7,306	54	96,405
London	4	4,864	5	2,998		
Maryport	1	1,407				
Newcastle			6	4,856		
Newport	3	3,149	5	1,649		
Queenstown						
Swansea			1	298		
American possessions:						
Alacranes			1	39		
Antigua			1	214		
Barbados	2	713	64	18,463		
Belize	3	3,039	110	3,564		
Bermuda			1	299		
Demerara			1	335		
Turks Island	1	352				
Jamaica			1	281		
Kingston	2	1,330	2	599		
St. Lucia	3	3,736				
Trinidad			4	1,375		
Oceanic possessions:						
Sydney			1	904		
Other ports			2	628		
Total	114	196,158	235	55,760	54	96,405
Italy.						
Genoa					1	1,592
Syracuse						
Total					1	1,592
Nicaragua.						
Corinto						
Nicaragua			1	371		
San Juan del Norte	1	444				
San Juan del Sur						
Total	1	444	1	371		
Peru.						
Callao			1	691		
Pisagua						
Total			1	691		
Portugal.						
Lisbon			1	358		
African possessions (Cape Verde)			1	270		
Total			2	628		
Salvador.						
Acajutla			1	288		
La Union			1	498		
Libertad	1	471			1	471
Total	1	471	2	786	1	471

e showing foreign shipping by ports of issue and destination, etc.—Continued.

issue and des- ination.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
ussia.								
urg.							1	353
ruguay.								
o.			2	1,610				
nezuela.								
			1	251				
			4	1,014				
ello.			2	704				
l.			7	1,969				
			1	420			2	704

Table showing foreign shipping by nations in fiscal year 1890–'91.

ations.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
	65	109,769	21	7,397	52	105,857	24	9,487
	15	31,744	2	1,347	12	30,972		
			27	7,798				
	54	88,115	10	2,753	45	74,879		
	1	1,142						
					1	1,348	1	1,249
	2	1,825			1	1,003		
			5	1,512				
							5	2,891
	63	199,080	79	5,991	57	162,666	70	4,327
tes.	630	823,752	194	48,386	633	807,367	219	62,177
	36	78,596	31	9,987	28	63,580	14	4,439
			1	424			1	520
			1	355				
							1	648
			2	471			1	565
			8	944			1	44
	114	196,158	235	55,760	54	96,405	291	61,472
					1	1,592	1	1,461
	1	444	1	371			2	1,146
			1	691			1	1,387
			2	628				
	1	471	2	786	1	471		
							1	353
			2	1,610				
			7	1,969				
			1	420			2	704
l.	982	1,531,096	632	149,600	885	1,346,140	635	152,870

Table showing résumé of foreign shipping in fiscal year 1890–'91.

Ports.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
European	258	542,019	90	44,295	170	364,296	227	74,187
Asiatic	2	1,825			1	1,003		
African			3	867				
American	722	987,252	537	103,114	714	980,841	404	76,833
Oceanic			1	904			2	1,146
High seas			1	420			2	704
Total	982	1,531,096	632	149,600	885	1,346,140	635	152,870

Table showing general résumé of the maritime movement in fiscal year 1890–'91.

Description.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Foreign	982	1,531,096	632	149,600	885	1,346,140	635	152,870
Domestic	2,150	1,056,067	4,649	162,275	2,161	1,077,988	4,607	156,047
Total	3,132	2,587,163	5,281	311,875	3,046	2,424,128	5,242	308,917

Comparative table of the maritime movement in the ports of the Republic during the fiscal years 1889–'90 and 1890–'91.

Year.	Entered.				Cleared.			
	Steamers.		Sailing vessels.		Steamers.		Sailing vessels.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
1890–'91	3,132	2,587,163	5,281	311,875	3,046	2,424,128	5,242	308,917
1889–'90	2,811	2,112,696	5,351	326,314	2,766	1,997,068	5,347	316,488
Increase	321	474,467			280	427,060		
Decrease			70	14,439			105	7,571

AFFAIRS AT ST. HELENA.

REPORT BY CONSUL COFFIN.

The condition of this island has not improved since my last annual report. The revenue of the island during the year ended December 31, 1891, has fallen about $7,500. The emigration has not been as large as the previous year, but every steamer bound to South Africa carries away a few, mostly female servants, cooks, and mechanics.

An attempt is being made to make St. Helena a coaling station for freight and passenger steamers bound around the Cape of Good Hope. A ıs been imported, which will be erected to give them every spatch in coaling.

ıe past year the American cooked pressed corned beef, which een served out as part of the rations to the soldiers stationed ppeared from the rations served out to the garrison and Ausd pressed corned beef has been substituted in place thereof.

s of provisions during the year have been as follows: Beef, $15 ork, $20 per barrel; bread, 6 cents per pound; American flour ; Australian flour in sacks of 200 pounds, $8.25 in the early ear, but, owing to there being a short supply on the island, the ed to $10 for both grades; lard, 11 cents per pound in cases or erican pine lumber, $40 per 1,000 feet; American cypress lum1,000 feet; kerosene oil in cases of 10 gallons, $2.50; high case; American granulated sugar in barrels, 6 cents per pound; wn sugar in sacks, 4 cents per pound.

ıial government has imported the American cypress lumber on ıas been found impregnable to the white ant, and it is now imthe United States by the colonial government to take the place ilding and repairing.

ng fleets recruited at this port in September and again in March. oner *Lottie Beard*, of New Bedford, with supplies for the whalers cargo for the island, made her semiannual trips during the year.

JAMES B. COFFIN,
Consul.

TATES CONSULATE,
St. Helena, June 30, 1892.

JOHORE TEA.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

s the famous old Straits of Malacca is the Sultanate of Johore, ependent Malay Kingdom on the peninsula. Under the wise rule of its enlightened prince Johore has kept along abreast of rring English civilization of Singapore, and its 15,000 square r as good cultivation as any part of the English colony and its bitants as loyal and patriotic as their neighboring Europeans. n, in his work of building up his country, has gone outside the ıcts of the soil and has experimented with staple productions ve to other sections. In coffee, pepper, and tea his experiments so far successful that to-day they comprise the chief output of gdom, outstripping in value the native products of the soil— ., cocoa, pineapple, gambier, spices, and gums. Especially in has the soil proved efficacious, giving it a delicious odor and the taste of many connoisseurs places it ahead of the original now famous Ceylon.

ıltan will, through my solicitation, send an exhibit of Johore Chicago Exposition, I have thought that a description of its growth and quality might be of interest to the lovers of good tea in the United States.

I am indebted to Dato (Lord) Walter F. Garland, M. I. C. E., commissioner of public works in the Government of the Sultan, for aid in the compilation of this report. To Dato Garland's untiring energy and practical knowledge of the tea plant Johore is under great obligations for its successful culture. I would refer interested parties to him for any further information that they may desire.

The Michaelstowe tea gardens in the Sultan of Johore's territory have an area of 800 acres, of which 165 acres are under cultivation. It is most conveniently situated on the River Scudie, 25 miles from Singapore by water and 8 miles by road from Johore. It is planted with Assam hybrid, which, in this steamy climate, "flushes" all the year round. The leaves plucked are the young shoots, the bud and the too small leaves next to it only being pinched. As these are picked off, fresh shoots are thrown out and in about eight days are ready for plucking. These young shoots are called "flushes," and on the average each bush flushes three times a month. In about a year the bush flowers and must be pruned, *i. e.*, the shoots are cut back, which stops the picking for six weeks or so, but gives time for the bush to increase in size and flushing power. The tea tree has been known to bear for forty years.

In Johore no crop was picked until five years old, but this was due to difficulties in starting a new industry in a foreign country. Planting was commenced in 1882, when labor was difficult to find and expensive to keep; now, in 1892, thanks to the wise government of the State by its enlightened ruler, labor is cheap and plentiful. Coolies in these gardens receive 18 cents in Mexican silver per diem for every day they work (or, at present exchange, say 12 cents in American money). The whole garden has to be dug over three times a year, and, with manure once in three, years is capable of producing an all-round average of 500 pounds per acre.

The bushes are planted 5 feet apart in rows also 5 feet apart. They grow and flush well on these low-country lands and produce teas remarkable for their strength, which are greatly in favor both in Australia and London, fetching equal prices in the open market with Ceylon teas grown at the same elevation.

Chinese, Javanese, and Malayan laborers are employed, and it is found that the most rapid and skillful pluckers are the women and children.

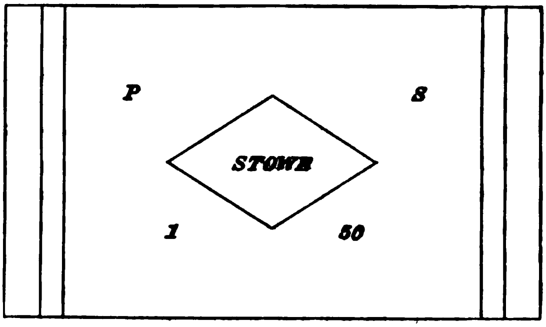
The teas are, owing to their strength, used by the trade for blending with China teas; they are also excellent drinking teas, but must be freshly made as an infusion, not a decoction. Boiling water poured on the leaf should be allowed to stand for four minutes, then the liquor poured off into another vessel, and the leaf thrown away; if nice tea be wanted fresh leaf must be used.

Every morning, with the exception of Friday (the Mohammedan Sunday), men, women, and children are called out at daybreak by a horn to pluck aves. At 11 a. m. the horn is again the signal for their return to have their morning's pluckings weighed in by the manager. are paid at a fixed rate per pound of green leaf. Each basket is handed in, is weighed by the mandore, the weight of the ted, and a ticket for the balance handed over. At 1 p. m. the em out again, and a similar weighing operation takes place at 5 ting only that the morning tickets are called in and the total the day put against the name of each plucker in the check good flush of leaf on the bushes a smart plucker can pick 60 af in a day.

leaf thus received into the factory is then handed over to a set oolies (also on contract), who have to turn it into "made tea." leaves are sprinkled over bamboo trays and placed on stands floor of the factory under cover in order to "wither." The handled as little as possible. Second, when the leaves are sufered, which is known by touch and color and the time it takes, ery much upon the state of the weather (wet or dry), they are rolling" machine (in this case a hand roller, in large factories er power is used), the box of which holds a charge of 50 pounds. constructed that when in motion sliding over a woolen platughly presses, twists, and rolls the leaf without losing the juice. es about an hour to properly roll, when it is ready for the third is fermentation. The "roll" or mass of leaf as withdrawn from pressed into a heap upon a low table and turned over repeatedly the whole mass changes from its previous yellowish green to a ry color, which takes place in about an hour. Fourth, the ll is spread over wire-gauze trays and placed in the "sirocco," ge iron chest over a furnace. The temperature of the air in aised to 260° F. There are four trays which slide into the rent levels; the topmost tray filled with the roll is put in first minutes is withdrawn, turned over by hand, and placed on the a newly filled tray taking its place on the top shelf, and so on tray has passed through the four sides, when it has become the whole operation taking from twenty to twenty-five minutes. ounds can be manipulated in an hour.

nto grades is the fifth stage. The unassorted teas are fed into a sisting of two long cylinders composed of wire mesh of different neness. As the cylinders are made to revolve by turning the a works down the top horizontal cylinder, dropping out through ccording to size, and finally falls into the bottom horizontal out at its further end. The finest mesh, of course, gives the lower cylinder being the coarsest. The grades are (1) broken e, (2) orange pekoe, (3) broken pekoe, (4) pekoe, (5) pekoe) souchong. About 40 per cent of the tea made turns out alance souchongs.

The sixth and last stage comprises: (1) Weighing the different grades, upon which weight the factory coolies are paid at a fixed rate per pound (about 4¼ pounds of green leaf make 1 pound of manufactured tea); (2) tasting to detect burnt, badly rolled, under or over fermented teas); (3) filling into wooden chests lined with lead and soldering down, each holding about 50 pounds on the average, before which the tea has to be passed through the sirocco quickly once again, in order to expel all moisture before packing, an operation which is known as "final firing;" (4) marking the chests with the description of tea, weight, and garden mark, thus—



Stowe standing for "Michaelstowe," the name of the garden, in a diamond mark; P. S. stands for pekoe souchong; 1, the number of the chest, is the "break" of tea to be shipped, 50 the number of pounds in the chest. The chests are bound with rattan split into and nailed in two bands round the chests. They are then entered in the dispatch book with their proper gross and net weights, taken to the river and dispatched to Singapore by Chinese junks, thence transshipped to ocean steamers for Australia and London.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, June 18, 1892.

FOOD PRICES IN EUROPEAN CITIES.

REPORT BY CONSUL BOWEN, OF BARCELONA.

I have the honor to transmit the following carefully prepared report showing the prices of the necessaries of life in the principal cities of Europe. I regret that I have not time to reduce the price equivalent to American money, but, as the Spanish peseta is of the same value as the franc (19.3 cents in American money), the reader will have little trouble in appreciating the values. For all purposes, as far as this table is concerned, the Spanish centavo may be estimated at one-fifth of an American cent, although it is a small fraction less. The peseta is equal to 19.3 cents, and there are 100 centavos in the peseta. The equivalents for the weights and measures are given in a note at the foot of the table.

Table showing the prices of food in some of the principal cities.

Cities.	Bread per kilogram.	Milk per liter.	Butter per kilogram.	Beef per kilogram.	
				First quality.	Second quality.
	Centavos.	*Centavos.*	*Pesetas.*	*Pesetas.*	*Pesetas.*
	48	25	3.00	1.70	1.10
	30	24	2.65	3.00	2.25
	50	55	5.50	2.20	1.50
	39	20	2.60	1.70	1.50
	50	25	3.25	2.50	1.80
	35	22	3.20	1.30	1.00
	32	23	2.32	1.95	1.38
	40	25	3.90	2.50	2.20
	47½	25	2.65	2.25	2.00
	45	17	3.00	1.05	.70
	40	18	2.40	1.80	1.65
	40	34	2.45	1.45	1.15
	37½	20	2.75	1.90	1.62
	60	25	3.75	1.50	1.20
	42	40	3.60	1.93	1.80
	37	40	3.00	1.00	.80
	42	35	4.00	3.00	2.10
	37	45	3.70	2.75	1.75
	50	50	4.00	1.75	.88
	42	25	2.00	3.75	1.60
	45	50	4.50	2.50	1.85
	31½	25	4.00	2.43	1.50
	40	20	2.75	2.15	1.45
	58	29	3.30	2.10	1.60
	40	40	4.00	2.20	1.90
	78	60	5.00	1.60	1.30
	45	40	4.00	2.40	1.80
	40	40	3.50	3.00	1.80
	42	80	3.50	2.50	2.00

Cities.	Mutton per kilogram.		Ham per kilogram.	Sugar per kilogram.	Candles per kilogram.
	First quality.	Second quality.			
	Pesetas.	*Pesetas.*	*Pesetas.*	*Pesetas.*	*Pesetas.*
	1.50	1.30	5.00	1.60	1.50
	2.80	2.25	2.70	.97	1.50
	1.40	....	2.20	1.50	2.50
	1.70	1.60	1.60	....	1.50
	2.50	2.00	4.00	1.00	2.10
	1.40	1.20	1.00	1.00	1.80
	1.13	.98	1.85	.85	1.80
	2.60	2.20	2.40	1.15	2.20
	1.65	1.50	3.00	.96	1.85
	1.05	.35	2.45	1.05	1.48
	2.00	1.80	2.20	.62	1.70
	1.20	....	2.55	.90	1.24
	1.60	1.60	2.50	.80	1.38
	1.20	1.00	1.60	1.00	1.75
	2.10	1.60	3.90	1.60	1.75
	1.20	.90	1.15	.55	1.50
	2.50	1.50	3.15	1.10	2.00
	2.75	1.75	2.60	.64	2.00
	1.35	.88	1.75	.50	2.75

Table showing the prices of food in some of the principal cities—Continued.

Cities.	Mutton per kilogram.		Ham per kilogram.	Sugar per kilogram.	Candles per kilogram.
	First quality.	Second quality.			
	Pesetas.	*Pesetas.*	*Pesetas.*	*Pesetas.*	*Pesetas.*
Hamburg	3.75	1.60	3.50	1.10	2.25
Barcelona	2.50	1.90	5.00	1.20	1.90
Glasgow	2.31	1.72	3.34	.57	....
Geneva	2.15	1.85	3.20	.55	1.60
Vienna	1.40	.92	1.05	1.05	1.00
Paris	2.50	2.00	3.00	1.20	2.50
St. Petersburg	1.60	....	1.70	1.50	1.20
Naples	1.50	1.20	1.80	1.60	1.50
Nice	2.00	1.60	3.00	1.20	2.20
Madrid	2.50	2.00	3.50	1.80	2.00

Cities.	Petroleum per liter.	Bean coffee per kilogram.	Coal per ton.	Beer per hectoliter.	Potatoes per 100 kilograms.
	Centavos.	*Pesetas.*	*Pesetas.*	*Pesetas.*	*Pesetas.*
Milan	65	4.80	....	....	16.00
Brussels	17	2.05	25.00	15.00	8.00
Lisbon	55	4.00	40.00	....	13.00
Lyons	45	....	27.00	38.00	6.00
Berlin	30	5.00	30.00	25.00	9.00
Christiania	25	4.25	25.00	35.00	13.00
Buda-Pesth	37	4.04	28.50	43.60	5.35
Bordeaux	46	2.80	26.00	30.00	12.00
Munich	27	3.50	31.00	31.00	9.00
Stockholm	25	2.50	28.00	42.00	7.00
Berne	20	2.50	43.00	25.00	8.00
Trieste	32	3.30	27.60	40.00	10.60
Stuttgart	26	2.12	39.00	26.25	11.35
Moscow	20	5.00	45.00	25.00	6.00
Rome	60	5.40	36.00	30.00	10.00
Constantinople	23	2.50	41.00	30.00	17.00
Marseilles	45	4.50	40.00	25.00	12.00
London	22	4.50	30.00	27.50	22.00
New York	20	1.20	27.50	42.00	17.35
Hamburg	25	5.00	21.25	45.00	15.00
Barcelona	60	5.50	40.00	25.00	15.00
Glasgow	13	4.40	20.00	55.00	13.00
Geneva	25	2.80	50.00	32.00	9.00
Vienna	46	3.00	36.50	51.70	10.60
Paris	55	5.40	50.00	30.00	11.75
St. Petersburg	20	4.20	55.00	52.00	....
Naples	60	5.00	35.00	60.00	10.00
Nice	50	6.00	45.00	50.00	12.00
Madrid	80	5.00	58.00	50.00	15.00

NOTE.—The weights and measures in the above table, reduced to American equivalents, are as follows: A kilogram = 2.205 pounds; 1 liter = 2.113 pints; 1 hectoliter = 26.417 gallons.

HERBERT W. BOWEN,
Consul.

UNITED STATES CONSULATE,
Barcelona, July 19, 1892.

AFFAIRS IN MATAMOROS.

REPORT BY CONSUL RICHARDSON.

HEALTH AND TEMPERATURE.

er ended June 30, 1892, has been one of unusual healthful-
e than usual heat and lack of moisture. There have been
n estimated population of 12,000, which, compared with the
for the quarter ended June 30, 1891, indicates greater health-
mean temperature per month for the quarter ended June 30,
ated by the following table, together with the amount of rain-

Month.	Mean temperature.	Rainfall.
	Degrees.	*Inches.*
	76.5	0.14
	79	0.06
	82.5	0.09
		0.29

EFFECTS OF THE CONTINUED DROUGHT.

report that there has been no break in the drought that has
so long. There have been a few light showers, but not heavy
eve the situation. The condition of things is indescribable.
om up the river and back for miles on either side indicate a
of affairs. No water, no grass, crops entirely burned up, cat-
ywhere, no money, and people starving. It is but little better
most impossible to supply the table. There are no vegetables
figs and grapes, usually so fine, are all we have, and they are
meat at any other time would not be considered proper for
a few instances, where irrigation has been faithfully attended
as been constant cultivation, the crop has been saved. Dur-
uarter $36,000 (Mexican) have been expended for corn for this
ct. It retails at 2½ cents per pound. For two years the im-
corn have been heavy. The effect of the exportation of so
from a poor people for one of the staple products of the coun-
with the extraordinary depreciation of money, can scarcely be
rom July 1 to September 1 corn will be admitted free of duty.
neans of support left to many families is the delicate linen
n which Mexican women are so skillful. Their only market
ed States. The tariff is 60 per cent. There is so little profit
aid that there is no demand for the work. Many are driven

of invoice, when the difference in exchange is taken into con-
ows no real falling off in exports, and this is remarkable. In

my report one year ago I indicated my belief that trade at t touched bottom; that the value of imports and exports would in than decrease. This seemed clear from the improbability of lo ation of the drought or further depreciation of silver and the r pectation of railroad construction. But the drought continues, as far away as ever, and exchange was quoted at the Brownsv Bank on July 7 at 50 per cent, while exports remain the same.

This long-continued drought and depression is not with effects. The business men of the different cities of the fronti izing for relief and development. Possible industries, irrigatic portation are being discussed in public meetings and the public view to some action.

Salt is found in this State in inexhaustible quantities. been brought into Matamoros, and two shipments have been pan the past quarter. Others will follow. Several attempts the coming year to irrigate by horse power from the river.

There is as much talk of railroad construction as ever. the Matamoros, Linares, and Matchuala line that seems to give surance.

JOHN B. RICHARD

UNITED STATES CONSULATE,
Matamoros, July 18, 1892.

VERACRUZ AND NUEVO LAREDO CUSTOMS S

REPORT BY CONSUL-GENERAL SUTTON, OF NUEVO LARE

VERACRUZ.

For the fiscal year ended June 30, 1892, the receipts and were as follows:

RECEIPTS.

Balance from previous year	
Import duties	$11,143,551.69
Balance of all kinds from previous years	590,548.98
Tonnage dues	6,999.84
Light-house dues	13,929.50
Export duties on native woods	11,405.22
Smelting, assay, etc., duties	3,386.81
Fines	636.69
Short-time loans	1,684,900.00
Confiscations and fines	79,766.24
2 per cent for hospitals	1,637.91
Deposits	46,573.64
General treasury	135.88
2 per cent additional for port works	234,623.49
Maritime and frontier custom-houses	49.38
Total	

EXPENSES OF ADMINISTRATION.

-house officers	$88,492.54	
rdo officers	71,746.81	
crews	5,331.35	
	6,757.76	
	5,950.77	
m	2,827.61	
	4,189.74	
penses	9,113.34	
		$194,409.92
ncome		13,706,543.76

EXPENDITURES.

	8,676.76	
ion certificates	1,048,295.00	
	4,415.34	
ious years	3,896.36	
	1,737,828.59	
fines	85,486.32	
pitals	1,750.54	
	15,287.65	
and extraordinary expenses	4,626.73	
e port	146,537.29	
cates, decree of April 2, 1888	1,707,830.00	
nal for port works	234,602.66	
cates, decree of September 17, 1890	1,400,050.00	
ubvention certificates	171,720.00	
	25.48	
	6,486,563.40	
s in lieu of 20 per cent certificates	627,660.00	
ailway companies and set off against sub-	7,802.13	
, and assay duties	116.00	
		13,693,170.25
rried over to July 1, 1892		13,373.51

expenses of administration, in detail, for the fiscal year ended June 30, 1892.

Description.	Salary.	
	Per diem.	Total for year.
se:		
	$13.70	$5,000.50
	10.96	4,000.40
	6.85	2,500.25
	6.31	2,303.15
	5.48	2,000.20
	4.11	1,500.15
	3.57	1,303.05
seventh, eighth, ninth, tenth, and eleventh)	3.02	6,613.80
, thirteenth, and fourteenth)	2.74	3,000.30
	8.22	3,000.30
	5.48	2,000.20

Table showing the expenses of administration, etc.—Continued.

Description.	Salary.	
	Per diem.	Total for year.
Veracruz custom-house—Continued.		
8 inspectors	$9.59	$28,002.80
1 accountant	4.94	1,803.10
1 secretary	6.58	2,401.70
1 chief of section, railway wharf	4.94	1,803.10
1 librarian	3.29	1,200.85
1 writer, assistant to above	1.65	602.25
18 writers, first class	2.20	14,454.00
12 writers, second class	1.65	7,227.00
1 warehouse keeper	5.48	2,000.20
1 warehouse keeper, wharf	5.48	2,000.20
1 money-counter	1.98	722.70
1 porter	1.65	602.25
2 servants	.83	605.90
1 first commander of guards	9.59	3,500.35
1 second commander of guards	8.22	3,000.30
5 chiefs	3.29	6,004.00
40 guards	2.74	40,000.00
1 mounted chief	4.11	1,500.15
15 mounted guards	3.29	18,012.75
4 storekeepers	1.48	2,160.80
2 storekeepers, railway station	1.48	1,080.40
2 cockswains	1.37	1,000.10
12 oarsmen	.99	4,336.20
Total	....	177,247.65
Subport of Santecomápam:		
1 chief	2.20	803.00
4 guards	1.65	2,409.00
Total	....	3,212.00
Subport of Alvarado:		
1 chief	3.29	1,200.85
1 writer, deputy	2.20	803.00
5 guards	1.98	3,613.50
1 cockswain	.83	302.95
4 oarsmen	.69	1,007.40
Total	....	6,927.70
Subport of Tlacotálpam:		
1 chief	3.29	1,200.85
1 writer, deputy	2.20	803.00
5 guards	1.98	3,613.50
2 oarsmen	.69	503.70
Total	....	6,121.05
Subport of Nautla:		
1 chief	2.20	803.00
1 cockswain	1.10	401.50
3 guards	1.65	1,806.75
4 oarsmen	.83	1,211.80
Total	....	4,223.05
Grand total	....	197,731.45

penses are appropriated in bulk and distributed according to the different offices. The total for all offices for the year was

NUEVO LAREDO.

ipts and expenditures for the fiscal year ended June 30, 1892, vs:

RECEIPTS.

	$1,836,472.94	
kinds from previous years	32,349.77	
, etc., duties	6,025.30	
d fines	9,114.60	
s	62,000.00	
ional for port works	36,808.69	
ional for goods wired and sealed, order 87	35.20	
	1,956.11	
y	21.31	
	7.80	
	19,341.61	
		$2,004,132.33

EXPENSES OF ADMINISTRATION.

loyés	69,250.70	
	2,000.00	
		71,250.70
nce		1,932,881.63

EXPENDITURES.

tment		62,139.21
scations:		
	2,248.85	
	496.31	
		2,745.16
ificates, decree of April 2, 1888		307,570.00
ipts in lieu of 20 per cent certificates		5,132.88
ailway construction:		
ational, 6 per cent	93,810.56	
ic, 3 per cent	46,905.12	
l Oaxaca, 2 per cent	23,219.82	
		163,935.50
m railway companies and set off against count:		
	563.88	
ic	4,111.72	
and Mexican Gulf	5,027.61	
ational	65,967.44	
		75,670.65
ificates, decree of September 17, 1890		176,610.00
ipts in lieu of 12 per cent certificates		11,011.16
on, and extraordinary expenses		175.03
xchange		3,418.13
vious years		3,682.36
yés		418.17

Confiscation and fines:		
Remitted	$2,466.32	
Distributed	5,135.97	
		$
Importation duties		
2 per cent additional for port works		
Short-time loans		
Municipality of the port		
Salaries of employés		
National treasury		1,0
Total expenditures		1,9
Year ended June 30, 1891, omitting balances from previous years		1,8
Year ended June 30, 1892, omitting balances from previous years		2,0
Net increase		1.

Table showing the expenses of administration, in detail, for the fiscal year ended
1892.

Description.	Sala
	Per diem.
1 administrator	$13.70
1 auditor	9.59
1 first officer	6.58
1 second officer	5.48
1 third officer	4.11
3 officers (fourth, fifth, and sixth)	3.29
1 correspondence clerk	3.29
12 writers	1.92
3 inspectors	8.22
1 treasurer	6.58
1 warehouse-keeper	5.48
1 assistant warehouse-keeper	2.74
1 porter, money-counter	1.65
2 servants	.83
1 commander of guards	8.22
1 second commander of guards	5.48
2 chiefs	3.29
20 guards	2.74
1 female guard	1.00
8 guards at ferries, etc	1.65
Total	

WARNER P. SUTTON
Consul-Gen

UNITED STATES CONSULATE-GENERAL,
Nuevo Laredo, August 13, 1892.

THE EXTENSION OF CHINESE TRADE.

REPORT BY CONSUL FOWLER, OF NINGPO.

e honor to inclose herewith a translation from the Shen Pao of
ay of the Chinese Polytechnic Institute for this year. The
ven by the taotai of Chefoo, who is himself largely interested
e pursuits, being the manager of the Chinese Telegraph Com-
irector of a steamship company.

y is interesting if only as showing how and to what influence
ttribute Great Britain's commercial supremacy in China.

JOHN FOWLER,
Consul.

STATES CONSULATE,
Ningpo, July 13, 1892.

THE BALANCE OF TRADE.

[Inclosure in Consul Fowler's report.—Translation.]

SUBJECT.

o the annual returns of the Chinese imperial maritime customs of those
l trade relations with China in 1890 the sum of 60,800,000 taels represented
avor of England, while 800,000 to 900,000 taels represented the balance of
ssia and the United States.

g balance of trade in favor of England and against Russia and the United
oted in the customs returns of several preceding years. Explain whether the
al phenomenon is due to the natural resources or to superior commercial and
ities of the respective countries; also suggest the *modus operandi* best calcu-
d extend trade in China.

ESSAY.

rcial status of a nation does not depend upon its natural productions, but to the
usiness capacity of its people; for, in spite of the scarcity of a nation's natural
people be skilled in manufactures, raw materials from other countries can be
onverted into useful articles by skilled labor and the latter exported with
ery countries which produced them.

r hand, the natural resources of a country may be very great, but, in the ab-
nical appliances and skillful labor, much raw material is actually wasted and
ed to the best account, and proportionately little benefit is derived.

e and the United States pay the greatest attention to trade, and we perceive
of those nations that maintain trade relations with China the balance of trade
favor of England and against Russia and the United States.

for the above is not far to seek. Both the United States and Russia can not
and in her manufactures; for, while both the former, for industrial causes,
ch more than they export, the latter, with all her energies directed to manu-
ort her wares to other countries in exchange for silver and gold, which goes
pulation, as her importations are always less than her exportations.

Some people contend that England owes her prosperity to her great colonial possessions with their immense natural resources. Such assertions can only be made by persons who are ignorant of the fact that of the raw material used in her manufactures only a small proportion is produced in her own dominion, as take cotton for instance. England was the first European nation to employ machinery in ginning and spinning cotton. The invention gave a tremendous impetus to cotton manufacture with its attendant profit, so that in 1868 there were 2,470 cotton mills with 400,000 looms and 32,000,000 spindles in operation in England. Additions to this number are being constantly made. During the same year (1868) cotton cloth and yarn were exported to the amount of $521,230,080 in gold, without counting the home consumption.

The raw cotton used was furnished by the United States, but English ships received the freight from the United States to England; the wages for its manufacture were received by English laborers; English mill-owners also made their profit; in the final export to foreign countries the carrying trade was almost entirely in the hands of the English, while the Government revenue on cotton alone amounted to $21,000,000. It will be seen from the above that, although the United States produced the cotton, yet England derived the most benefit and may be cited as an instance to show England's prosperity by her industrial capacity. English exports may be divided as follows: Cotton manufactures, 40 per cent; woolen, flax, and silk manufactures, 20 per cent; and the other 40 per cent consists of general merchandise. We see that, in spite of having to buy her raw material, England stands at the head of other nations in wealth by her manufactures. On the other hand, it is to be greatly deprecated that China does not pay sufficient attention to manufacture, and consequently she labors under a disadvantage in her commercial relations.

It is now some half a century since China has had trade relations with foreign countries, and, while the latter have derived great benefit from the commercial intercourse, the good that has accrued to the former is rather problematical, while the harm has been and is only too palpable (the introduction of opium). Oh, that another Liu Yen (a prodigy of the Tang dynasty) might appear, so that the present condition of affairs may become changed.

The natural resources of China are truly great, and, if the proper methods be inaugurated and due attention paid to industrial science, there is no reason why China should not equal or even excel England. I will explain. The principal exports from China at present are tea and silk. The European countries are devoting special attention to the cultivation of tea and silk. The cultivation of the latter is strenuously carried on in Italy, France, and Japan, while in India and Ceylon the same can be said in regard to tea. Such strides have been made in both of these industries in the countries mentioned that the present annual production nearly or quite equals that of China, to the great detriment of the latter in the trade of these two great staples. As may be seen by comparing the figures of the tea and silk trade, the export has steadily decreased until at present the export of tea and silk represents only about 10 per cent as compared with that of a decade or two ago; so that many foreign houses have been closed, while the Chinese merchants, owing to strong competition, have lost so heavily that they are almost reduced to despair.

Unless some remedial measures are soon adopted by China, it will not be many years when both the tea and silk trade will be monopolized by foreign producers. But, independent of foreign competition, the trade in silk and tea has been prejudiced and nearly ruined by the Chinese producers and merchants by carelessness and indifference in looking after the breed of the silkworm; by refusing to employ machinery, by want of uniformity in picking, preparing, and packing tea; and last, but not least, by adulteration and other questionable practices. While in foreign countries they avoid all the above in order to snatch away this trade from China, is it not high time for China to adopt some measure to combat this formidable competition?

In one of the reports of the inspector-general of the Chinese imperial maritime customs to the tsung-li yamên the causes which threaten the tea trade were set forth and a remedy was offered, viz, that the officials should issue proclamations calling upon the tea-producers to asure to improve the quality of the leaf and upon the dealers to avoid any If this recommendation is faithfully carried out, it would surely be one of the ve the condition of the tea trade.

ton fabrics is another great product; but since the introduction of foreign cloths, finer and cheaper, the demand for the homemade article has frightfully de- cially is this true in regard to chintz and figured cloths, which, by their taking ısing color, making them very suitable for women's and children's wear, have the native prints out of the market. In other kinds of cloths the foreigner oducing new designs to meet the popular taste and demand, so that many of ufacturers are obliged to close their establishments. Even foreign cotton yarn neasure superseded Chinese yarn. China produces an enormous quantity of nd she should by all means establish cotton mills with machinery for weaving, yeing the manufactured cloths, so as to be able to supply the home demand and t trade beside.

cotton-cloth mill and a spinning mill have been established in Shanghai, yet ıfactured there seem to have been designed solely to meet the Chinese demand, ntertaining the object of supplying the same to foreigners or to foreign coun- applying intelligent farsightedness to these great industries their extent of necessarily be circumscribed.

her great product of China; but since the introduction of velveteen, satin, cam- foreign fabrics the silk trade has greatly suffered, and many people who de- ne weaving of silk for a living are thrown out of employment. To maintain ina must drop her old and primitive method of manufacture and adopt modern Vith the latter she can to good account turn much that is now considered as , such as hair, feathers, etc., into useful textiles, whereas now foreigners gather g cost, ship them to their own countries, convert them into useful articles by reëxport them to China with great profit. China should convert her raw nanufactured articles: her straw and rushes into mats and hats, her hides into nanufacture her own needles, buttons, umbrellas, etc., instead of importing ign countries.

vegetable products turnips (beets) and sorghum can, by the aid of foreign made into sugar which is both better in appearance and taste, besides being , than sugar made from the cane, with the incalculable advantage that both of products flourish in every part of the Empire.

esses an infinite variety of medicinal plants, which, if prepared by chemical be a great source of revenue to those engaged in that branch of the trade. nai, and citrous fruits can be profitably made into wine, while the cereal plants material for distilling spirits. The cultivation of tobacco should be greatly he products be made into cigars, cigarettes, snuff, etc. As wine and tobacco nmand a ready market in foreign countries, not to mention the innumerable ave acquired the taste for foreign wine and tobacco, if the foreign method be he manufacture of these articles the profit resulting would be great and certain. be desiccated by the foreign process, and fish, meat, game, etc., preserved. A pen for the exportation of porcelain ware if due attention is paid to foreign and finish. On account of her extensive mines, China should be able to fur- untries with iron and articles manufactured from it. The consumption of sheet very great and constantly increasing. Factories for their manufacture should ablished, and minor industries like electroplating could also be inaugurated the demand for electroplated ware both at home and abroad is considerable. ch in copper; rolling mills would therefore be necessary. Factories for making d matches have already been initiated in China; but they should be greatly by adopting the most approved methods great fortunes can be made.

A few words about opium, that great curse to this country. The foreign merchant brings the opium to China and takes away in its place gold and silver. Since its introduction the amount of treasure that has flowed out of the country for this baneful drug is appalling to contemplate. It is said that the Christian body in England has repeatedly petitioned Parliament to prohibit the opium traffic, but, owing to the fact that the chief source of Indian revenue is derived from opium, the Government has always refused. As China can not suppress this traffic without the coöperation of England, the only wise course remains for her to encourage home production, as the money expended on the home product by the people would remain in the country, whereas in the case with foreign opium the money goes out to enrich foreign producers. It is gratifying to know that the opium grown in Le-Chuen, Yun-Nan, Ngan-Hoei, Shen-See, Kan-Soo, and Shan-See is gradually driving out the foreign drug. Further extension of the cultivation of poppy would foster internal trade and increase the revenue of the Government without special prejudice to the people at large.

There are those who contend that extensive cultivation of the poppy plant would be prejudicial to the cultivation of food plants, but such a view can only be entertained by those who are ignorant in regard to the solution of the problem of the traffic in foreign opium.

From the foregoing it will be seen that the adoption of foreign methods has been recommended: first, to supply the home demand; second, to enable China to become an exporter instead of an importer, and thus direct the golden current to flow inward instead of outward as heretofore.

If China wishes to foster and extend her commerce, she must devote her attention to physical science and study with intense application those mechanical laws as exemplified in labor-saving machinery. In foreign countries there are many people who devote their lives to the study of physical sciences, constantly endeavoring to discover new applications of physical laws, and in consequence most marvelous results have been attained, which, to the uninitiated, seem little short of the miraculous. Physics includes chemistry, electricity, light, heat, gravity, etc. All mechanical advances have been due to some application of physical laws.

Colleges for the study of these sciences should be established at all the principal cities, with efficient corps of professors, and only bright and clever youths be admitted thereto, so that in the near future China may have a body of men thoroughly versed in physical sciences who can put their knowledge to practical test by useful inventions. General physics embraces so many branches that it would be well ordinarily for a pupil to devote himself to some special branch. In connection with the above industrial schools of practical mechanics should also be established.

In foreign countries machinery is used primarily to save human labor, but also to increase production and to insure the uniformity of the article produced. An ordinary machine is so constructed that it may be attended to by one single man while perhaps doing the work of a thousand, and, though the first cost may be considerable, yet the labor saved by it and the better quality of the goods produced far counterbalance its original cost.

In foreign countries innumerable factories are established where every conceivable article is made by machinery and in such vast quantity that after supplying the home demand an enormous export trade is carried on with tremendous profit; while in China, everything being done by hand, in spite of her enormous natural resources she can not begin to compete with those countries that employ machinery; and, unless China, too, should establish factories with modern machinery and skilled foreign mechanics, so that she could in time learn to make the machines and how to manipulate them, she must ever take a back seat. Such a plan would at once check the steady outflow of Chinese treasure.

The foregoing remarks on physics and practical mechanics are of vital importance to manufacture and trade, but there are eight other points which deserve our attention:

(1) An official should be appointed by the Government whose sole duty should be devoted to trade, with deputies to inquire into every detail. This is done in almost all the foreign countries. The benefits derivable from such a course are self-evident. China has never in the past appointed such officials, but since the establishment of the imperial maritime

commissioners at the various ports have partially performed those functions, and
e condition of trade are submitted by them to the Government annually; but
ls should be appointed, as before mentioned, whose duty is to look after trade
ble assistants to study the details, such as the adoption of foreign methods or
udicial and unnecessary changes.

-stock companies should be formed, so that large capital may be found for un-
at enterprises. In the present want of coöperation in China the wealth of the
ins stagnant and great interests are neglected, to the prejudice of the commer-
ity at large. In order to establish factories as advocated, coöperation is indis-
l we should imitate the prudence of foreign merchants in their joint-stock enter-
the management is left entirely in the hands of the merchants without official

ncourage invention by promulgating patent laws. Foreign governments accord
or of anything new or useful a patent certificate, which entitles the recipient to a
a specified number of years to manufacture the patented article, thereby com-
m for his great labors and inciting him to further efforts. How is it in China?
es a man invent something useful or profitable than somebody, ever on the alert,
vention with impunity from the man who perhaps devoted many years and a
erfecting it. What a wretched and discouraging state of affairs. China ought
to adopt patent laws, in order to encourage and stimulate the inventive genius
.

against adulteration and commercial trickery. Dishonesty may prevail for once
it is sure to be detected and the harm resulting from it is not easily remedied,
uing an honest policy afterwards; hence the necessity for stringent laws against
practices, in order to create confidence at home and abroad.

udy the market and the popular demand, which is the secret of success of the

old industrial expositions, as is so frequently done in Europe and America. In
ions the manufactures of different countries are placed side by side and their
merits noted, with judges to award medals, etc., to those that excel. These ex-
ease the knowledge of the people, besides causing a healthy rivalry in the dif-
es of industry and creating new and wider markets. England, France, Germany,
tates, and Japan have all held international exhibitions. Would it not be a good
na to follow suit?

l foreign countries the import duty is very heavy to protect home industries and
ign competition. China should therefore revise her tariff in this respect. The
should be made lighter, to encourage exportation. Foreign wine and tobacco
e duty free. The chief revenue of foreign governments is derived from them.
hand, the present onerous tax on the export of tea and silk should be abolished.
able when China first had trade relations with foreign countries, but after so many
erience and knowledge of foreign affairs the above order of things should be re-
e earliest possible date, and it should be borne in mind at the next revision of the
ch a course would benefit the Government as well as the merchants of China.

extension of trade. Under the present régime both the import and export trade
nds of the foreign merchant. To do this it is necessary to increase the Chinese
avy. The China Merchants' Steam Navigation Company has already absorbed
of the coast and river trade which was formerly monopolized by foreigners, but
ough; she should establish lines with the Straits, Europe, and America. With
duced rate for passengers and freight she would be able to compete with existing
s divert the trade from its present channel. This would encourage Chinese trade
market for Chinese products abroad, and the importation of foreign goods would
ed in Chinese bottoms. It would also cement the natural relations of the innu-
ber of Chinese residing abroad.

The foregoing eight propositions deserve immediate attention. It is high ti to get out of the old ruts and apply herself to industrial science in relation to and trade. It is owing to her intense application to the same that England n lead in the commerce of the world. It has been shown that the prosperity of a na upon her attitude towards commerce and manufacture. Let us take Japan as When she adopted the European mode of dressing and living, the European m urally expected to supply the new demand; but, contrary to sanguine expectatio lished factories and manufactured goods not only sufficient to meet the home with plenty left over for a considerable export to those very countries ready to su posed needs. The Japanese are constantly increasing the number of their fact rapidly have they advanced in mechanical knowledge that they are become competitor with Europe.

If Japan, with her limited area and resources, has attained to such commercia what may we not reasonably expect of China, with her enormous resources, wh take advantage of modern science in manufacture and when her incalculable m shall have been developed? Such a step would not only render China indepen able her to supply the rest of the world with her goods. On the other hand, i not change her policy, the constant drain of treasure will leave her in a few decac

PANG SHA

THE PROVINCE OF ANGOLA.

REPORT BY COMMERCIAL AGENT CHATELAINE, OF LOANDA

Having often had occasion to notice the almost complete which prevails in Europe and in the United States in regard to th of Angola, and realizing the vast benefits which may result b province and general commerce from any report which would show and truthful way the vast possibilities of the district, I have end the following pages to supply, in part, the necessary informatio

This report is not the reproduction of anything previously pu any language, but the result of eight years of hard study. The r province sent herewith, also original, will greatly facilitate the derstanding of the whole subject.

The scale of the map and present purpose did not allow me to details about the district of Loanda Angola proper, which will b ject of another map, to be drawn after my trip to the interior.

The special features of the present general map of Angola are: nation of the crowd of useless or unwarranted names to be found maps; (2) proper position of the various tribes constituting the n ulation of the province; (3) total presentation of Angola, as re creased—in fact, doubled—by the latest treaties with England and State; (4) indication of all the American mission stations esta this province and occupied by about fifty American citizens. In respects the map is absolutely new.

POSITION AND AREA.

As defined by the recent treaties with Germany, England Kongo State, the Portuguese province of Angola is one of the

ritorial divisions on the new map of Africa. Owing to its geographic position, variety of climates, natural resources, and to the progress already accomplished in the civilization of the natives, the intrinsic value and immediate possibilities of Angola surpass those of any other possession in tropical Africa.

From 4° 40′ to 17° 20′ south latitude it has over twelve geographic degrees of seacoast and the two best harbors of the whole west coast—the mouth of the Kongo River and the Bay of Loanda. Stretching to the interior as far as the Kasai and Zambezi rivers, it forms an irregular quadrangle covering about 1,250,000 square kilometers. In the north and east it borders on the Kongo State, in the southeast on British Zambesia, and in the south on German southwest Africa.

CLIMATIC CONDITIONS.

As regards geographic latitude, the whole of Angola lies in the tropics; but in many large tracts the climate is as salubrious as any in the temperate zone. Everywhere the temperature is advantageously modified—on the coast by the sea breeze and high bluffs, where the heat in the shade is never, the year round, unpleasant; and in the interior by the elevation of the land. Of course, the distance of 12° between the extreme north and south implies a variety of climates, irrespective of orographic conditions.

The country may aptly be divided into four zones, running from north to south and parallel with the coast.

(1) The coast belt, between 50 and 150 miles wide, with an average altitude of 100 to 150 feet. Except on river banks it is, owing to its sandy soil and scanty, irregular rains, considered sterile and of little value; but throughout it is rich enough in subterranean water to become valuable as soon as capital introduces wells and pumps for irrigation.

(2) The mountain belt is formed by the peaky work of erosion of the partition wall between the high table-land and the low coast belt, as also in some parts by volcanic action. This is the zone of grand scenery, inspiring panoramas, of sultry vale bottoms, cascades, and breezy peaks, of luxuriant vegetation fed by heavy showers, and of untapped mineral treasures.

(3) The plateau, or highland belt, extending from the Kongo to the Kunene and rising gradually from 2,000 to 6,000 feet. This is the realm of grass and bush, prairie and park land, the home of antelopes, gazelles, zebras, and appetizing herds of sleek cattle, the foreordained granary and live-stock ground of the coming century. Its general aspect reminds one strongly of undulating lands in the temperate zone. It is in the southern half of this high table-land, between 3,000 and 6,000 feet above sea level, that the white race can, and will, get acclimated.

(4) The fourth zone, a recent accession and largely a *terra incognita*, might be termed the inland depression, and is formed by the Kuangu (Quango) and upper Zambezi basins and the high flats of their watershed. Rather low, swampy, and overshadowed by our ignorance of it, this region

is for the present not very inviting to the white man. But its rich soil and its wide network of water ways navigable for small craft will one day make it no less desirable than its more advanced western sisters.

As a rule, it may be stated that, as moist heat is detrimental to the white organism while highly beneficial to vegetation, the most fertile regions are also the most unhealthy, and, *vice versa,* the most salubrious districts are also the least favored as regards luxuriant vegetation. This rule, however, like all, has a few exceptions. The most unhealthy parts of Angola are never, by far, as deadly as the Gold Coast and the Lower Niger. On the coast, from Benguella north, and in all other districts held to be dangerous, it is possible for whites who can afford the comforts of life and an occasional trip to the temperate zone to live a goodly number of years, though not without paying their tribute of fever or dysentery. As a race, the whites can not expect to prosper anywhere north of 14° south latitude, but the American negroes, though by no means fever proof, could find a genial home in all the highland of the interior.

Thus, again, the high plateaus of the south, while perfectly adapted for the white race, are far from sterile. They will yield abundant crops of all that is produced in the subtropical and temperate zones, but before the highland can offer inducements to white settlers it must be connected with the seaports by means of railroads.

PRODUCE AND RESOURCES.

The staple articles of export are:

India rubber, which is still found in the forests of the Kuangu Basin, and is imported from the Kongo State. It could be cultivated in most districts.

Coffee, growing spontaneously and cultivated in the mountainous zone from the Kuanza (Quanza) River to the Mbiriji River, but susceptible of cultivation through the whole length of said zone.

Gum copal and other gums, the collection and trade of which is a source of income for thousands of natives, especially in the coast belt.

Wax, which is produced (in all zones) and obtained by the same process.

Hides, belonging to coast and plateau, rarely to the mountain belt.

Orchilla weed, exclusively to the coast belt.

Palm oil and kernels, produced on the river banks of central and northern Angola.

Ivory, mostly brought from hunting grounds far back of Angola, but still found to some extent in the southeast.

Kola nuts grow wild in the coffee district, but are not yet exported.

Cotton grows spontaneously in the coast belt and on the plateaus, and is cultivated sporadically.

As for minerals, copper, though no longer exploited in exportable quantities, is found at Bembe and many other points of the mountain belt.

een found in the sand of the Lombiji River. Silver is said to known to the natives in olden times. Iron is abundant every- coal crops up at Dondo. Salt is an article of export of the be. Clay for brick, limestone, sandstone, and granite for build- es are as common as in most countries.

ole coast of Angola is exceedingly rich in fish, and in the district edes a whole colony of Algarvian fishermen live on the fish they and export to all parts of the coast north of them.

TRADE AND SHIPPING.

clared exports of Angola amounted in 1890 to little less than , the imports to about the same sum.

ines of steamers—two Portuguese, one English, one German, one e Belgian (to the Kongo), and one Dutch—connect the province pe. Though most anxious to have it, the province has no direct tion with the United States.

ncipal ports are Kabinda, Kongo, Ambrizette, Ambriz, Loanda, ndo, Benguella, and Mossamedes.

of small steamers plies on the Quanza River, connecting Loanda lo; and the lower courses of the Lifune, Dande, Bengo, and ers are accessible to sailing craft. The coasting trade is largely iling vessels.

INLAND TRANSPORTATION.

ilroad from Loanda to the interior is built as far as the Lukala Catombela is connected with Benguella by a small railway. In most of the produce is transported from the highland to Mossa- the Boers in their ox wagons. Yet well-nigh the whole produce rior is still brought down to the coast by the human beast of bur- vans of native traders, of whom the Mbaka (Ambaca), Ma-hungu, nji (Cassange), with terminus at Dondo or Loanda, and the (Bailundo) and Viye (Bihe) people, with terminus at Catombela la, are the most important.

POLITICAL DIVISION.

ovince, as governed by Portugal, is divided into four districts:

e Kongo district, with capital and district governor at Kabinda. district, organized since the Berlin conference, and, as it is located ngo Basin, placed under the liberal régime of the same. It was ified, in a retrograde sense, by the Brussels conference.

e Loanda district, centrally located and in every way the most Loanda is the capital of the whole province, seat of the provin- tments, residence of the governor-general, and in some respects ity of western Africa.

e Benguella district, ranking next to Loanda in age and present l development.

(4) The Mossamedes district, a modern accession, and the only district enjoying a climate adapted for the propagation of the white race.

Every district, excepting that of Kongo, is subdivided into "concelhos" (something like counties) and these again into "divisões" (or divisions, something like townships).

The provincial and district governors, with right royal powers, are by tradition naval officers; the "chefes" of the concelhos are, as a rule, officers of the army, and the commandants of the divisions are resident traders or educated natives. In the Kongo district the heads of the counties, there called residencies, have the title of "residentes" (residents). They are five in number, and the residential capitals are Kabinda (also district capital), Kakongo, San Antonio, San Salvador, and Ambrizette.

The concelhos of the Loanda district are Loanda, Barra do Bengo, Icolo e Bengo, Barra do Dande, Alto Dande, Ambriz, Encoge, Zenza do Golungo, Golungo Alto, Cazengo, Ambaca, Duque de Bragança, Talla Mungongo, Malange, Pungo Andongo, Cambambe (Dondo), Massangano, Muxima, and Novo Redondo.

The concelhos of the Benguella district are Benguella, Catombela, Egypto, Dombe-Grande, Quillengues, Caconda, and the quite recent posts of Bailundo and Bihe.

The concelhos of the district of Mossamedes are Mossamedes, Bumbo, Lubango, Humpata, Huilla, Gambos, and Humbe.

ETHNOGRAPHIC DIVISION.

The boundaries of the districts correspond, slight overlappings excepted, with those of the ethnic national stocks of the native population. The whole Kongo district is occupied by the old Kongo nation, which overlaps the northern border of the Loanda district. The latter is mainly inhabited by the A-mbundu, or Angola, nation, whose name has been extended to the whole province. The concelho of Novo Redondo alone belongs ethnologically to the Benguella group. The district of Benguella is all occupied by the Ovi-mbundu and tribes closely allied. The people of the district of Mossamedes have more affinities with the well-known Herero and Ova-mpo group than with the others of Angola. They might be termed the Kunene group. This district also embraces a few swarms of the Hottentot and Bushman families. The nations of the Kuangu and Zambezi basins, the fourth zone, are not yet administered by Portuguese authorities and are not comprehended in any of the above districts.

In Africa the safest criterion we have thus far for ethnic divisions is that of language. The people speaking one language immediately intelligible to all constitute a nation. As the nation is composed of a number of tribes, so a language comprehends the various dialects of such tribes.

The tribes of the Kongo nation, as far as included in the province of Angola, are:

(1) Ngoio, occupying the Kabinda enclave, north of the Kongo River.

ongo, south of the Kongo River.
e Exi-Kongo proper, the court or royal tribe, south of the Kongo

amba, on the Mbiriji River (and scattered in small colonies in
 district).
angu, immigrants from Loango, north of the Kongo River, a
ndering blacksmiths, but settled in strong colonies in the Dande

e great Hungu tribe, almost a nation by itself, occupying the
stock around the head waters of the Loji and Lukala (Lucalla)
lependent.
bes of the Angola, or A-mbundu, nation are:
e independent federation known as the Dembos (Ji-ndembu), be-
ipper Dande and the Lombiji rivers.
e Mbaka (Ambaca), comprising the concelhos of Ambaca, Ca-
ch of Golungo Alto, of Duque de Bragança, and of Malange;
ed in small colonies as far as the Kasai and Sankuru rivers. The
 half civilized, and generally recognize European authorities.
e Ngola proper, or Ndongo, in the Hamba Basin; independent.
e Mbondo, northeast of Malange on the watershed of the Kuangu,
d Lukala rivers; nominally subjected.
e I-mbangala, or Kasanji, tribe, between the Tala Mungongo de-
d the Kuangu River, east of Malange; independent.
e Songo, divided in Great and Little, occupying the whole right
e Kuanza from Malange to Viye (Bihe); mostly independent.
e Haku, between the upper Kuanza and Ngango rivers, on the
f the former; independent.
e Lubolo, between Haku and Dondo, on the left bank of the Ku-
pendent.
e Kisama (Quissama), between the Kuanza, the Longa, and the
endent.
he population of the large settlements between Malange and Loanda,
t bank of the Kuanza, does not constitute a tribe. Composed of
ople and a mixture of natives from all parts of Africa, semi-
nd directly governed by Portuguese authorities, and speaking a
 creole in addition to the native tongue, it has made the greatest
 European civilization and corruption.
bes between the Longa River and Egito (Egypto) are more akin
-mbundu group, but occupy a somewhat isolated position. They
Mbwiyi (Amboim), between the Kuvu and the Longa rivers, the
and Ba-sele, north and south of Novo Redondo, and, further in-
ibala.
i-mbundu, or Nano, people are the highlanders of Angola. They
e region between the head waters of the Kuanza and the coast.
pal tribes are the Mbalundu (Bailundo) and Viye (Bihe), differing

physiologically, but speaking practically the same tongue. Smaller tribes are the Ndulu and Ma-lemba, on the left bank of the upper Kuanza.

The various tribes of the Nano (*i. e.*, highland), between the upper Kunene and the coast, belong to the same group as the Ovi-mbundu proper.

Along the coast and small river courses of the Benguella and Mossamedes districts are found savage tribes in a low state of culture and about whom very little is known. They are called Ba-ndombe, Ba-kuando, Ba-kuiso, Ba-koroka, and Ba-kaoko.

The larger tribes of the highland of the Mossamedes district are the Ba-ngambue (Gambos) or Ba-nyaneka, Ba-londo, Ba-humbi, Hai, Iau, Ba-ximba, and Ba-kuba.

Beyond the Kunene River are the Kua-mato, Kua-niama, Handa, Niemba, Fende, and the Ba-kankala of the yellow Hottentot or Bushman race.

In the fourth climatic zone, which is formed by the recent accessions to Angola—what is now known as its "zone of influence"—we find from north to south, in whole or in part, the following nations and tribes:

The Ma-xinji (Ma-shinji), on the right bank of the Kuangu River, south of the Ma-yakala. They are linguistically, but not politically, allied with the Ma-Kioko.

The Lunda, due east of Angola proper.

The Mi-nungu, on the upper Kuangu, neighbors of the Ma-Songo and Ma-Kioko.

The Ma-Kioko, along the upper course of the Kasai River, and now far scattered as hunters, blacksmiths, traders, and conquering slave raiders.

The Ngangela, east of Viye (Bihe).

The A-mbuela, south of the Ngangela and occupying most of the south-east corner of Angola as recently increased.

The Ba-rotse, in the upper Zambezi valley. They are by treaty divided between England and Portugal, as the Lunda are between Portugal and the Kongo State.

The Ma-mbunda, on the Kubango River.

LINGUISTIC DIVISION.

This, as already stated, corresponds largely to the political division and exactly to the ethnographic division.

The languages already cultivated embrace the three principal ethnic stocks of Angola. In the north, English and American Baptists are developing the Kongo language, whose court dialect (of San Salvador) is called Kixi-kongo, while that of the region around the Kongo rapids is called Ki-kongo, or Mfiote. In Angola proper, that is, in the central district of Loanda, the language is called the Ki-mbundu, and its two principal dialects, that of Loanda and that of Mbaka, have been and are cultivated by the author of this report and the Methodist Episcopal Mission. The principal dialect of the Benguella district, that of Bailundo and Bihe, has been raised by American Congregationalist missionaries to the status of literary language of the whole district. In the district of Mossamedes no native language can yet boast of a literature.

The grammatical structure of all native languages and dialects of Angola is virtually the same and the roots of the word store are common to all; so that in the future natives of one district will without difficulty be able to read any book or paper printed in the languages of the other districts or linguistic groups.

Excepting the Ba-kankala, all tribes and dialects of Angola belong to the Bantu stock. Like all other Bantu languages, those of Angola are euphonious, rich in grammatic forms, and remarkably pure and regular.

POLITICAL ORGANIZATION OF THE NATIVES.

The political organization of African tribes is very much the same all over the continent; the differences bear rather on secondary points and the personal characteristics of tribal or national rulers. These remarks apply immediately to the tribes of Angola proper, that is, of the district of Loanda; but with slight modifications they would also be true of the other Angolan districts and of African tribes generally.

It will be found that the native African system of government is both rational and practical; in fact, as good as it could be. Neither absolutely democratic, nor aristocratic, nor monarchic, but a happy blending of these three fundamental types. Whether large or small, every village or town or tribe or nation is governed after the same uniform pattern. The legislative power is vested in the council of the elders or prominent men, which includes all freemen whose opinions have some weight in the eyes of the people. These elders are called in Ki-mbundu "ma-kota." They are the depositories of the tribe's or nation's traditional customs, which constitute the laws or constitution according to which the body of the elders, as well as the chief, are to administer public affairs, and the chief executive is to be elected. Thus this council pretty well corresponds to our parliaments.

The executive power is vested in the chief, or king, whose title is, in northern Angola, "mfumu" or "ndembu;" in central Angola, "soba;" and in southern Angola, "o soma." As a rule, the chief is elected and inaugurated by the elders, in accordance with definite rules, in one royal family, the heir to the throne being rarely the son, but most always the oldest or the ablest son of the defunct or deposed king's oldest sister. In the interest of the State, the chief has nominally absolute power over the life and property of his subjects; but practically he can do nothing without consulting the council or the most influential of the elders; and woe to him if he offends public opinion. He may suddenly be accused of witchcraft and fall a victim to the poison test or be deposed or killed by the elders with the consent and coöperation of the public.

The chief is called the father of the people, his subjects are called his children, and he is expected to treat them as such. Every chief, on being inaugurated, takes the name of his predecessor and his place in the royal household. The State property he administers and uses for the public service, but he can not dispose of it, and his private property is kept separate. According to native law, a chief has no right to alienate the land of his people, though such dealings are of constant occurrence in the written treaties of European powers with African chiefs.

The judicial power is not vested in any special judges or courts. As soon as a question arises between two parties, one or both of them call an umpire or a court of umpires, and thus most of the quarrels are settled by arbitration. Important questions and infractions of the chief's regulations or tribal laws are judged by the chief and by the elders. The supreme tribunal, however, is that "of God," as it is called by African natives, as well as by the Europeans of the Middle Ages, that is, by the poison test or some other ordeal of the sort. Through the awe it inspires to all and the blind belief of the public in its verdict, the medicine man who administers it wields, in a limited sphere, the highest power, to which every person of the place is subject.

Every chief has a certain number of officers who assist him in his administration. They correspond to the cabinets or ministries of modern civilization. The highest officer is the chief's "vice," who often is his presumptive heir, and whose title in Ki-mbundu is "ngolambole." He is the chief's right hand, represents him in his absence, and is regent during any interregnum. The inseparable companion of the chief is the "tandala," "muzumbu," or "sakala," who is the chief's secretary, or, better, his mouthpiece. It is he who transmits all messages to the chief and the answers of the latter to petitioners or negotiators. He publishes the royal orders, receives and introduces strangers, and attends to the official correspondence—where writing has been introduced. Besides these two standing, necessary officers, Angolan chiefs have, according to their importance or pride, some of the following officers: A captain of the militia, an executioner, a collector of taxes, a superintendent of roads, of markets, etc.

In some tribes the chief may be a female as well as a male, and in most tribes the head wife of the chief—of the preceding as well as of the ruling chief—has great power and influence.

If some subjects of a chief establish a new settlement, the chief gives them a vassal chief with the royal insignia of the cap ("kijinga") and the scepter ("mbasá"), and thus originates a new line of kings, which, with time, may gather power and become paramount in the tribe. The vassal chiefs have to pay a small tribute to their suzerain.

Sometimes several towns or tribes of equal rank unite in a federation for the purpose of mutual defense, as is the case among the Dembos (Ji-ndembu). At other times an ambitious and able chief succeeds in forcing neighbors to recognize him as suzerain and pay him tribute, and thus becomes a chief of many chiefs, a "jaka." All tribes used to have a supreme chief, but in recent years their power has been waning, and the only king of central Angola who still holds sway over his whole tribe and maintains an elaborate system

and hereditary nobility is that of Ngola, or Ndongo, whose name
ias been given to the whole province.
ing of Kongo has dwindled down to the status of a public func-
the Portuguese Crown, and his dukes, counts, and barons may be
things of the past.
;ola there is no trace of the military despotic system of the Ama-
f tyrannic Neros like the kings of Dahomey.

SOCIAL ORGANIZATION.

nost Bantu tribes, it is the mother and not the father who deter-
sanguinity; therefore, the child of a sister is held by a man to be
descendant and legal heir. The children belong to their mater-
ınd not to their father. The father's relation to his children is as
rith us, that of a stepfather to his stepchildren. The uncle has the
ll his nephews and nieces, separating them from father, mother,
ınd sisters.
my is everywhere honored, though its evil concomitants and con-
are not ignored. Every wife has her own house, gardens, and pri-
erty. The first wife, or head wife, has a limited authority over
ɔines, and the whole system works much more smoothly than peo-
lization would imagine. Still, its demoralizing effects are every-
ɔle, and there is no hope of a regeneration of the race as long as
is not condemned by public opinion and finally eradicated. The
he foundation of the state, and monogamy the corner stone of a
usehold.
sence of metal or paper money to represent capital has much to
ıe popularity of polygamy, as each additional wife, with house,
ields, and cattle, is considered a paying investment of capital.
ıts given by the wooer for his bride are not, as usually represented,
," as though she were simply bought, but the symbol and pledge
ntract entered into. If he treats her unmercifully, she can run
he loses his deposit. If, on the contrary, she should prove un-
ıe parents will have to return the equivalent of the wooing present.
a mutual check.
eatest festivity of the native Angolans is not the wedding, but the
lled "tambi." All the relatives and friends gather and have a
ɔlow-out" as long as there is anything left.
ıcision is very widely practiced, but obligatory only among a few

SLAVERY AND SLAVE TRADE.

is no corner of Angola where slavery is not in practice among the
Nor can slavery exist without slave trade. The worst horrors of
however, do not appear in the local trade. They are enacted in the
ıst of the province and in the unsubdued parts of the Kongo State,
Ma-Kioko and other tribes raid the slaves they bring to the coast.

It is then that villages are attacked, burnt, sacked, and the human flocks driven to the slave markets, many dying on the road, while others are used as beasts of burden to bring to the coast the rubber, the wax, and the ivory so coveted by the whites. Legally, slavery is abolished in all Portuguese possessions. But forced labor, under the name of legal contract, is more flourishing than ever, and it is to supply the demand of the great coffee plantations of Cazengo, of the great cane (rum) plantations of the Kuanza and Dande rivers, and of the coffee and cocoa planters of St. Thomas and Principe that the Kasanji (Cassange), Bailundo, and Bihe traders canvass all central Africa, in search of the human plunder of the Ma-Kioko raids.

Domestic slavery among the natives is an evil, no doubt, but not to be compared with that of contract labor on the plantations. The slave of the uncivilized native is treated as a child and often loves his master like a father and his mistress like a mother. His master having no more needs than he, the slave is often as well off as the master. He has very little work to do, and all he earns in his free time is his own, so that, if he wants to become free, he may after a time redeem himself. Not so with the plantation laborer. The exacting white man is determined to squeeze out of him every cent he may produce, and the manatee whip is from early morn till dusk in the hands of the foreman and even of the planter himself.

The plantation hands of Angola, St. Thomas, and Principe are, in almost equal numbers, Ba-sele and Ba-sumbe of Novo Redondo, Lubolo people, contracted at Dondo, and people from beyond the Kunene—Ngangelas, Lundas, Kasanjis, and other less known tribes.

RELIGION.

The ever-repeated assertion that the Africans are fetichists, that is, worshippers of inanimate objects, is utterly false. The Angolans have the same religious system as the Bantus generally. They are not idolaters in the strict sense, nor polytheists, and much less atheists, but superstitious deists. They believe in one great God, who made and maintains all things, invisible, yet seeing even the thoughts of men, the author of all the good, but also of much of the suffering. They generally think that God is angry with mankind and indifferent to the details of their daily life. They do not formally worship God, nor represent him by any image, nor do they believe He is contained in any fetich. The only carved image which the Angolans call God is an imitation of the crucifix, and they clearly state that this is the white man's God, not the God of the universe. And they call it God, because the Catholic priests taught them, showing the crucifix.

What travelers generally call African gods are no gods at all, but inferior spirits, to whom God has intrusted the administration of natural forces. These inferior spirits and the shades of the deceased are the supernatural beings whom the natives fear and serve. With them they converse through the media of their "i-mbunda," them they seek to propitiate by offerings and sacrifices, and to them they attribute most mysterious accidents of their simple life.

nages the natives have and horns, bones, stones, and sticks, so l their gods, are simply amulets and talismans consecrated by their ıen, differing in nothing but the form from the host of amulets ıy countries in Europe.

eves that when he dies he lives on in hades much the same as he h, only much longer—how long no one can tell; but if man dies des, he goes to another place about which nothing at all is known. reads to die as a slave, because he thinks he will enter the other ve and continue in that inferior state. Therefore, he entreats his ive him his liberty as he passes from this life.

golans do not seem to have any definite idea of a hell or paradise; e same region and are there, as here, the authors of their own d fortune.

NATIVE INDUSTRIAL ARTS AND COMMERCE.

dent of ethnology in Angola is confronted with the strange but tible fact that the development of native arts is in inverse ratio act the people have had with civilization. European trash is oc in native industries, and alcoholism blunts the sense of beauty, d all skill.

fine specimens of native manufacture have to be sought in the ilized (and unbrutalized) corners of the land, and Angola is industrially to some of the remotest tribes on the Kasai and Lulua tead of the decaying native industries, European trades are bere and more general, and one may hope that, when taught by s, the natives will show in the civilized trades as much taste and used to show, and some still show, in their primitive manufac-

ncipal native crafts are (1) agriculture, (2) hunting, (3) fishing, (5) carving, (6) basket-making, (7) weaving and dyeing, (8) d smithing, (9) trading, (10) medicine and divining, (11) apihe European trades which have been generally introduced in the Loanda and largely in the other districts are (1) tailoring, (2) g, (3) cooperage, (4) masonry, (5) shoemaking.

ple of Kongo weave beautiful mats made of palm fiber, but comd grass mats, which used to be the currency even long after the Europeans. The Kongo people bring these mats to Loanda and for courie shells, still used by some tribes as currency, and for The people around Encoge grow and collect coffee, which they briz and Loanda. The Luangu people travel far and wide as and brass smiths. The Hungu tribe grow coffee, which they engo, Dondo, and along the Loanda Railroad. The people of lto and Cazengo grow coffee and staple food articles. The be is given to agriculture, trading, European crafts, and generıeering for civilization. The Mbamba tribe, of Malange, makes a specialty of the carrying business, which the Ma-songo and Ngola have also undertaken within the last ten years. The Lubolo tribe seems to be breeding children in order to sell them. The Kisama tribe produces salt, honey, and wax and weaves mats and hammocks for export to other tribes. The Ba-sumbe and Ba-sele, like the Lubolo, seem to live on the trade of their own children and kinsmen.

The Ovi-mbundu, of Bailundo and Bihe, are great carriers and traders; the Ba-ndombe great cattle-raisers; and of the other tribes no special industry is known, the care of live stock seeming to be their principal occupation.

All through the coast belt many natives earn their living by collecting orchilla weed, baobab fiber, cotton, and different gums.

PHYSIOLOGIC DATA.

If in the early times of the black race there were distinctive national and tribal types and features, the countless crossings due to the systems of slavery and polygamy and to great wars must necessarily have blended and obliterated them. The famous characteristics of the negro and Bantu races, making them look as different as the Germanic and Semitic types, exist only in books and imaginations. There are some very striking types differing considerably one from another, but they are peculiar to no special tribe or nation of African negroes. Still, wherever the natives have been settled for many centuries and have a peculiar climate, peculiar food, and occupation, some tribal characteristics have developed, but the exceptions are always numerous. Thus the Krooboys (outside Angola), given to paddling and to a rice and fish diet, have an extraordinary development of chest and arms and a peculiar formation of the legs, which determines a characteristic gait. In Angola the fishermen of the island of Loanda are tall and have fine busts. The Kisamas are rather short, wiry, have scarcely any calves, and have a wary look. The Lubolos are of a bronze color, have round or angular heads, and are medium-sized. The Ngolas are dark, thin, and well formed. The Mbamba and Mbondo have nothing attractive, but are wiry. The Ma-songo and Mbalundu are of a chocolate color, tall, erect, have well-formed limbs and an open countenance reminding one of some European types. The Ba-ndombe, given to herding and milk food, are well-formed and have a well-developed musculature. But, as already intimated, these characteristics are less to be depended on than those of European nationalities.

Abnormities, such as dwarfs, giants, and albinos, occur, though not very frequently. Goitres are common only in the highlands. Elephantiasis is very frequent on the coast, but affects the men much more than the women. Blindness is mostly due to smallpox. Cases of extraordinary longevity are not rare. Insanity is not rare, especially in the proximity of civilization. Immorality and syphilis is incomparably rifer in the neighborhood of white settlements than among the independent tribes. Obesity is unknown among the uncivilized, but rather common among the civilized natives.

has, in proportion, a larger mulatto or mixed population than any of the west coast. The white population, too, is much more in Angola than in any other part of tropical Africa.

THE WHITES IN ANGOLA.

ongo River and the Angola coast were discovered in 1484 and er the reign of Dom João II, by Diogo Cão. The Portuguese were received by the then King of Kongo, Neginga-a-Cuum, as the pronounced the name. In 1491 the first Catholic mission landed ngo, and the same year the King and many of his subjects were nd a church built. The King of Portugal and the King of Kongo h other brothers, and for some time the rapid civilization and ation of the great Kingdom of Kongo seemed assured. But already King of Kongo complains to the King of Portugal about the priest empting to assassinate him, and in 1550 his successor accuses the olitical intrigues. Until then the King of Angola, residing at ad been a vassal of the King of Kongo. But in 1557 he sent an the King of Portugal asking to be treated on equal terms with of Kongo. His request was granted, and in 1559 Paulo Dias de led for Angola with a company of Jesuits. When, however, in arrived at the bar of the Kuanza River, they found another King , who had them arrested; but they escaped to Kongo. In the ensued between Kongo and Angola the latter seemed to triumph, eal was sent from Kongo to Portugal for help. In 1574 Paulo ovaes sailed again for Angola, this time with seven ships, carrying rs and as many colonists, no longer to help Angola against Kongo, nquer it, he, Novaes, bearing already the title of governor and the conquests of Angola. He met with no opposition, and in 1575 e city of Loanda on the site it still occupies. In 1578 he founded and colony of Calumbo, on the Quanza (Kuanza), and another on River. The same year he was reinforced by 400, and the follow- 200, men from Portugal. In 1579 some colonies were established nde River. In 1580 he had a war with the chiefs of Kisama. s later he founded Massangano and gave a great battle to the King who was beginning to surmise that his white friends intended to n of his Kingdom. From that time on the war between the Kings and the Portuguese never completely ceased until the King and e of Angola (Ngola) were driven to their present quarters on the ver, where they have lived on two hundred years in peaceful in- e. Many of the vassals of Angola joined the Portuguese, others and others made themselves independent of them. Thus most of ribes of the times of the conquest occupy to-day the same sites as red years ago, nor have the names, customs, and modes of life changed. Novaes died in 1589 at Massangano, and his successors the work of conquest with perseverance, though with less success.

The first white women were sent to Angola in 1594. Until 1597 the Catholic church of Kongo and Angola depended from the Bishop of St. Thomas and Kongo, residing at St. Thomas. In that year was erected the bishopric of Kongo and Angola, with episcopal see at the capital of Kongo, San Salvador.

The first Dutch fleet to cruise along the coast of Angola appeared in 1629, but it did nothing. In 1637 and 1641 other Dutch ships had unimportant naval engagements with the Portuguese. But on August 24, 1641, a Dutch squadron attacked and occupied Loanda, compelling the Portuguese to withdraw to the interior. In 1645 the Dutch also occupied Benguella. Hostilities between the Dutch and the Portuguese continued with almost equal success on either side until 1648, when Salvador Correa de Sá e Benevides, hailing from Brazil, landed in front of Loanda, reconquered the city, and after a series of victories finally expelled the Dutch from Benguella, Kongo, Kabinda, and Loango.

In 1760 the Jesuits were expelled from Angola, and have only reëntered it, unofficially, in recent years. Only in 1758 and 1761 were Kongo and Angola opened to commerce, as previous to that the Government had the exclusive privilege of trading. The first custom-house was built in 1766, but only in 1848 was a regular tariff established.

In 1858 came to Loanda the first (Portuguese) steamer of the line União Mercantil, owning four steamers. This company was followed by the Companhia Geral de Navegação a Vapor and the Companhia Lusitana and in recent times by the Empreza Nacional. The first English steam navigation company to run steamers to Loanda was the African Steamship Company, in 1871. The Kuanza River Steamship Company was founded in 1865 by the American, Archer Silva.

The National Ultramarine Bank began its operations in 1864.

The Kingdom of Kongo, after an apparently wonderful progress in civilization and Christianity, began soon to be torn up by dissensions with the Portuguese, and, worse yet, by civil wars, which went on weakening it, until in the beginning of this century its old power was almost completely gone and the country abandoned by the Portuguese. It was to some extent reoccupied in 1859 from Ambriz, but was finally reduced to a Portuguese district only after the Berlin conference in these latter years.

Ambriz, now an important town, belonged originally to the native Marquis of Musulu (Mossulo), was occupied in 1792–'93, and opened to the commerce of all nations in 1855, since which date it has grown to be one of the first ports of Angola. Benguella was founded in 1617, and bore the title of Kingdom of Benguella until 1836. It had a governor of its own independent of the governor of Angola, but now it is simply a district of the province. The Portuguese dominion was extended to Caconda in 1620, but not before 1890 was the highland of Bailundo and Bihe finally conquered. The city of Mossamedes is quite modern. It was founded by a Portuguese colony hailing from Brazil in 1849, and strengthened in 1850 by a new acceslonists. Since then the immigration of whites has never ceased, ie district of Mossamedes has by far the strongest white population. 9 Mossamedes had been occupied by a Portuguese post, with a r bearing the title of governor of the presidio, but it received the organization of a town only from 1851 to 1857. The present town of Dondo, near the old fort of Cambambe, was occupied as st in 1857 and organized as a municipality in 1870. It owes its o the Quanza Navigation Company and to the coffee plantations o. The concelho of Cazengo, now the most important agricul-ct of Angola, was left to the natives until 1835, when the first tation was established at Colonia. As soon as the railroad from aches the heart of this concelho the culture of coffee will become ource of wealth of Angola. Malange, now an important town and become the capital of the new district to be established in the e, was, in 1853, when Livingstone passed through it, a miserable ested by Ngola highwaymen. It became a post in 1857 and was l in 1870, but was soon reoccupied. It has been governed by "chefes" since 1857. As the starting point of many German ex-peditions, Malange has quite a name in geographical circles. It istence to the rubber trade.

THE BOERS IN ANGOLA.

ly white people established in Angola besides the Portuguese are the nall colony of whom "trekked" from the Transvaal and arrived on of Mossamedes in 1881, settling down at Humpata in 1882, when by royal decree, declared to be Portuguese citizens. They have egun to mix with the Portuguese and native populations, but live just as they did in the Transvaal, as independent farmers. They ned off in different smaller colonies. They have rendered valua-s to their district and to the Portuguese Government by building road to Mossamedes from the plateau, by carrying freight on their gons, and by their valor in the wars against Bihe and Humbe. ek" is expected, and the Portuguese begin to fear that a strong Boers may be the nucleus of a future republic.

OTHER NATIONALITIES.

briz and in the district of Kongo are found a number of English Loanda there is one English firm, and the cable men are Eng- A large number of Sierra Leone and Accra tribesmen work on d. At Benguella and Mossamedes the employés of the cable com-ne only Englishmen.

ns and French are very rare as traders, but the Loanda Railroad uite a number of Frenchmen and Belgians.

he Kongo to Benguella the largest trading firm is the Niewe Afri-Handelsvenootschap, and most of its agents are Dutch.

Since the closing of the United States naval store at Loanda and the death of Archer Silva no American traders have settled in Angola; but since 1881 several American missionary societies have opened stations among the natives of Angola, and now they are quite an important factor in the foreign population of the province. The present number of the American missionaries in Angola is about forty, including women and children.

The American Baptists have two stations in the Kongo district, the Methodist Episcopal Church has six stations in the Loanda district (Loanda, Dondo, Nhangue, Kiongua, Pungo Andongo, Malange), and the American Board (Congregationalist) has three stations (Bailundo, Kamundongo, Cisamba) in the district of Benguella.

EDUCATION.

This is a very weak point in Portuguese administration. The capital, Loanda, with probably more than 15,000 population, has a nominal high school, with a building, a staff of teachers who attend to other professions, but no visible teaching. A few primary schools of the municipality are attended, but most irregularly. The other cities of importance—Ambriz, Dondo, Benguella, Mossamedes—all have primary schools, but there, too, the attendance and the teaching are ridiculous compared with the population and commercial importance of the towns. Every concelho is supposed to have a school of some sort, and no doubt the money for the office of teacher is claimed by somebody; but the official returns themselves show that the teaching is more than poor. Notwithstanding the great lack of Government schools and teachers, the district of Loanda has thousands of natives who can read and write to some extent; but by far the greatest number have been taught by volunteer native teachers, who, themselves terribly ignorant, take a few children for a trifling remuneration and impart to them what little they know. In the interior many natives can only read manuscript, as their teachers had no books and could only teach them to read their own handwriting. The great tribe of the Mbaka has hundreds of such rudimentary unsupported schools, where teachers as well as pupils have never even seen a decent schoolbook, a slate, or a blackboard. Often teacher and pupils make their own ink with certain leaves or berries, their own paper with banana leaves, and their own pens with the stalks of a tall, strong grass.

Though the law requires the owners of contract laborers to give the latter primary instruction, that plantation is yet to be found where something like a school for the farm hands exists. The best schools in existence are those of the Catholic and Protestant missions, but in none of them does the teaching go beyond the primary degree. A college is the most crying need of this great and wealthy province.

HELI CHATELAINE,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Loanda, June 22, 1892.

AN AND SPANISH AMERICAN TRADE RELATIONS.

REPORT BY MINISTER ANDERSON, OF LA PAZ, BOLIVIA.

IMPROVED MEANS OF COMMUNICATION.

project for the expansion of our trade with the republics of Cen-
outh America improved water communication must stand first
recognized essentials to this great end and the one most de-
rompt and generous Government aid. The advantages to accrue
ted States from a completed intercontinental American railway
nportance to this great scheme of communication and is also de-
he hearty encouragement of our people and the generous bounty
ernment. Improved water communication means to us the same
r trade with these countries now enjoyed by the maritime nations
Railway communication means a wholly new and to us a practi-
ive agency in the development of our commercial transactions
h America. With this added arm of power we can with ease win
ional contest for the trade of these countries, despite the present
supremacy of Europe on our southern continent. The chief
o trade with an inland country like Bolivia and other regions of
rica occupying a like mediterranean position is the great cost of
g goods from the ports of either ocean to the interior of the con-
re, for the most part, are found the chief centers of the mining
tural population. Under existing conditions supplies for these
st, as a rule, be transported enormous distances by pack trains of
keys, and llamas and at great expense.

petus given to South America and South American investments
t result of the Pan-American Conference means in the near future
gmented mining and agricultural population and a consequent
emand for supplies throughout these districts.

international railway passing through the interior of the conti-
must in order to fulfill the object of its construction, this demand
by the United States as against the world. Steamships, of course,
furnish the cheapest, and constitute the principal, means of trade
on, but time is of the essence of our trade relations with Spanish
nd as certainly as it is imperative that the time of credit ex-
he merchants of these countries purchasing our goods should be
to meet the long credits given by European merchants, so it is
e of communication between us must be shortened. Faster and
umbers of steamship lines must, of course, contribute their share
, but rail connection solves the problem of time as steamship lines
Once connected by rail with the countries south of the Isthmus
the United States will become the objective point of the South
merchant and tourist, and thus coming in contact we shall come

to know each other better, shall discover that we have interests in common, and the ultimate end sought, viz, reciprocal relations of friendship and trade, will thereby be more rapidly advanced than could otherwise be possible.

No citizen of the United States visiting South America or temporarily residing here will question the statement that the people of this section of the western continent prefer to trade with us if they can do so on equal terms with those offered by the countries of Europe. They hail with satisfaction every proposition that tends to this result, and hence it is that the proposed intercontinental railway is regarded with special favor. Bolivia, being an inland republic, is particularly hearty and sincere in her support of this measure.

The action of the International American Conference upon this subject has created a spirit of enthusiasm in favor of railroads and internal improvements to which Bolivia has hitherto been a stranger. New lines of railway are being built and projected, and new interest is being everywhere awakened in the vast agricultural and mining resources of the Republic. Hitherto we have been content with the small annual trade our southern neighbors voluntarily brought us, while to-day we are seeking their markets for customers for the rapidly increasing surplus products of our farms and factories. A careful study of the mutual benefits certain to result from closer commercial relations between the United States and the other American republics has led to a mutual desire for the speedy consummation of this end, and therefore it is that national aid for the early completion of the great Nicaragua Canal and for the establishment of adequate transportation, mail, and banking facilities is a popular and growing sentiment with the people of the United States, and its beneficent results the fond dream of our less-favored American neighbors.

The time is near at hand when direct effort beyond anything yet seriously proposed or undertaken in behalf of the great public enterprises mentioned will so far become the focus of public sentiment that their adequate support will have the unqualified indorsement of everybody.

CHEAPER TRANSPORTATION.

When Europe undertook to secure the trade of these countries, cheap transportation was at once recognized as an essential condition, and to that end direct steamship lines were established to both coasts. The most sanguine expectations of the promoters of these lines being more than realized, line after line was added, until to-day there are five direct and competing European lines to the west coast of South and Central America and more than thirty to the east coast. The United States has but six to the east coast, five of which are owned and operated by English companies and sail under the English flag, while on the west coast we are wholly unrepresented.

Under these conditions transportation is necessarily against us, and especially to the west coast, whence goods shipped from New York must either go via Liverpool or do what is infinitely worse—pay the enormous freights

the Panama Railroad Company for carrying them across the
he necessarily high charges by sailing vessels via Cape Horn.

ghts from New York via Liverpool to Mollendo, Peru, the Pacific
the Mollendo and Puno Railway, over which Bolivian commerce
es, is 17*s.* per ton, as against 10*s.* to 12*s.* from Hamburg to Mol-
ference in favor of the latter of from 5*s.* to 7*s.* per ton; while
essel from New York the freight charges to Mollendo are from
per ton, or from 200 to 300 per cent more than from Hamburg.
ghts via Panama to the same point are 50 cents per cubic foot,
per ton, while insurance and all shipping charges are cheaper
e than from the United States.

arent that until we are in a position to transport our products
n ships sailing under the American flag the present excessive
ges will continue to debar us from anything like a fair share of
Spanish America. England, always alert and vigilant in pro-
le relations abroad, has hitherto had a virtual monopoly of the
de of these countries, simply because from the first she assisted,
nues to assist, every new packet line touching these shores until
e thoroughly established and self-supporting. France, through
and tonnage bounty system, and Germany and Italy, through the
lies and shipping bounties, are busily preparing to compete with
the carrying trade of the western hemisphere. If, therefore, we
e in the future trade of our own continent, it behooves us to en-
erchant marine and promote the intercontinental railway scheme,
e not only secured the establishment of the requisite number of
pendent, and self-supporting steamship lines between both our
d Pacific ports and those of the Latin-American republics, but
also united to them by iron rails. Nor is it necessary, in my
hat more than three lines of steamers be established in order to
compete for the trade of Central and South America. Let two
blished from New York for both coasts and one from San Fran-
paraiso, and we can, for the present at least, do practically all
business now offered by these countries.

ver, Government aid is to subserve the end desired, viz, the
nt of quicker and cheaper communication, it should only be ex-
the express condition that the lines so subsidized shall, during
overed by the Government's bounty, carry both freight and pas-
ertain fixed charges; otherwise they may charge what they please
defeat the very object intended. Moreover, we should in some
the Panama Railroad until such time as the Nicaragua Canal
pleted and opened to traffic. Under the present management
ot quite, 50 per cent of the cost of shipping by steamer from New
west coast by this route is paid to this company for carrying
s the isthmus, a distance of but 47 miles.

BETTER BANKING FACILITIES.

The absence of adequate banking facilities between the United States and Spanish America is almost as serious a hindrance to the promotion of trade with these countries as the absence of adequate means of communication. In almost every city on the east coast European banks with branch offices are met with, while on the west coast the banking is done through the local banks and business houses having their foreign connections with Europe only. The facilities thus offered for purchasing exchange on Europe are ample, while it is almost impossible to buy a bill of exchange on the United States in any part of South America, except in those countries where we have an exchange on staple goods, such as coffee, rubber, hides, etc.

As all bills for American goods must therefore be paid by drafts on London, our merchants are obliged to reduce their bills to pounds, shillings, and pence when drawing for settlement, and, on the other hand, pay thousands of dollars every year for the privilege of buying European exchange with which to meet their South American obligations. It is apparent, for these and other reasons, that we can not afford to continue to depend, as now, upon Europe for our banking facilities.

BRANCH HOUSES.

The principal merchants in nearly all South American countries are either Englishmen or Germans, having their own representatives in those countries and whose South American trade connections have been established for many years. Their local houses and the subordinate branches which they maintain in all the adjoining business centers are, as a rule, simply branches of the principal establishment in Europe. For instance, all of the leading foreign houses of La Paz maintain branches in Oruro, Cochabamba, Sucre, Potosi, and Santa Cruz and thereby reach the trade of the entire Republic. Being thus on the ground with a line of goods carefully selected with reference to the market, and being familiar with the financial standing of their customers, they are prepared to give terms that would be impossible for our merchants to offer in the absence of similar advantages. Well-organized local commission houses carrying full and judiciously selected lines of American goods, with corresponding branches in all the leading cities of the country, would, however, fully meet with the requirements of the foreign trade of Bolivia, which, though far less than some of the Latin-American republics—being about $32,000,000 per annum—is sufficiently large to invite the sharp competition of English and German merchants for its control.

PECULIAR FEATURES OF THE TRADE.

While there is nothing, from the finest broadcloth to the latest Parisian fashions, too good for the wealthier classes, there are certain lines of goods used in Bolivia and other South American countries, such as cheap prints, muslins, hardware, and the like, for which there is little, if any,

the United States. Our American manufacturers, not having
s class of goods in a country where the standard of quality and
ential to success, are not prepared to compete with the European
ers in furnishing this class of goods, while the European manu-
owing the trade, ready to meet its peculiar requirements, and
the fact that they do not have among the working classes of
ries, who are mainly Indians, an intelligent and appreciative con-
ble of appreciating the fine quality and finish of an article and
ather than quality is the matter of first consideration with the
adapts his goods to meet these conditions: It is true that in
ke Peru, where there is not an average of $1 per capita in circula-
ople have not the money to buy with.

iculty in Bolivia, however, is not so much a lack of money as a
lligent discrimination between a practically worthless article at a
ce and one of real worth at a slightly increased cost. It is ap-
under these conditions we must either lower the standard of our
vait the slow process of educating these people to a higher stand-
o event should we lower the standard of our goods; to do so
o take a step backward for a mere temporary advantage that in
uld prove a permanent injury to our trade with Spanish America.
deas and tastes of the laboring classes of these countries advance
are none the less advancing. From the ox team and wooden
used in Bolivia and in the interior of Peru and other regions of
rica, the farmers along the coast have passed on to a steel plow
e handle, and will presently be ready to till the soil with harnessed
double-handled steel plows, after the fashion of our progressive
ighly favored American farmers. Already the better classes are
o purchase foreign goods with discriminating care. They pass
man article as trashy, accept the English as fair, and buy the
n preference to all others if assured of its genuineness. In order
e growing sentiment in favor of our goods, foreign merchants in
ries send to Europe samples of all American novelties and im-
as soon as they are received, and there have them counterfeited,
trade-mark and name of the manufacturer, and then receiving
nments of these fraudulent goods, sell them in competition with
e article. Although these goods are in every way inferior in
finish, they are accepted by the unintelligent and unsuspecting
s genuine, because they bear the name and superscription of the
ticle. Not only are our American manufactures thus discredited
s of European merchants, but our trade is further handicapped by
t for the most part we must not only do business with the same
rchants, who are not only in sentiment opposed to our acquiring
these countries, but are actively engaged in preventing us from

As further indicating European trade methods in these countries, it is worthy of note that in certain parts of South America the European manufacturer does business directly with the merchant, giving them from six to twelve months' credit and charging them a small rate of interest from the date of invoice. This they can well afford to do, because of the large amount of unemployed capital in Europe.

These facts simply serve to emphasize what has here been said in regard to the importance of having our own representatives on the ground. It is by reason of being thus constantly and everywhere represented in the business centers of South America and by giving liberal credits that a certain New York firm is enabled to practically control the trade of these countries on such goods as patent medicines and drugs.

CLASS OF GOODS USED.

The largest consumers of certain classes of goods in South America are the railroads, which are entirely under the control of English capital and influence, thereby necessitating the purchase of their general supplies in Europe. The superiority of our American locomotives, cars, and all classes of railway machinery has, however, forced them to patronize our American shops for this class of purchases.

The industry of working wood by machinery is a growing one in these countries, and the trade for all classes of wood-working machinery is given to the United States. The Eagan Company, of Cincinnati, Ohio, controls 50 per cent of the South American trade in this class of goods, simply as the result of their enterprise in successfully placing their superior goods before the South American buyer. The Niles Tool Works, of Hamilton, Ohio, through dint of energy and the quality of their goods, are also meeting with fair success in introducing their iron-working tools of every description to the South American trade. American watches have long been known in Bolivia and throughout South America as preferable to those of European manufacture, not only on account of their designs, but the superior workmanship of their movements and astonishingly low prices. The Keystone Watch Company, of Philadelphia, has been meeting with remarkable success in introducing to the trade their patent filled cases, while all classes of American watches are meeting with high favor among the dealers of the country. Silver-plated ware of United States manufacture is also preferred here, because it is not only cheaper, but far handsomer in design, than that of European manufacture.

The success with which the Fairpoint Manufacturing Company, of New Bedford, Mass., is meeting in placing their goods of this class before the South American buyer is another example of what may be accomplished in these countries through characteristic Yankee push. While lard, hams, and the like brought here from the United States are lower in price and better in quality than those of other countries and we practically control the trade, the demand is quite limited, because the local article, though sadly inferior

considered good enough to suit the market; besides, the present
port duties are against us. There is a growing demand in
aining machinery and mining and carpenters' tools, galvanized-
and siding, axes, and ax and pick handles. Dress goods of all
ay shirtings can be sold here, but not white, because, the Ameri-
eing free from the starch and gum common to the white muslins
nd better in every sense, and therefore slightly higher in price,
and cheaper European article is preferred. In the line of dress
merican manufacturers are not producing at present the class
eded here. Their styles and widths are not what the market
This class of goods comes almost exclusively from Europe and
specially for the Bolivian trade. It is the practice of the mer-
to supply the European manufacturers with samples of the kinds
ded, and their orders are filled accordingly.

CONCLUSION.

usion, it may be confidently affirmed that, independent of the
cost of transportation, we are already prepared to meet the South
rices of the merchants and manufacturers of Europe and, with
ortation facilities, to easily undersell and outsell them in every
e country. Cheaper transportation will demonstrate that our
their cheapest source of supply for practically the whole range
us products adapted to the requirements of South American
oon as we have supplied the first condition of trade already
amely, shorter and cheaper means of communication, and have
in all the leading cities of these countries American branch
ing judiciously selected stocks of American goods and under the
of wide-awake Americans familiar with the Spanish language,
and the manner of doing business, we shall so far outrival our
mpetitors that their present commercial supremacy in Spanish
shortly cease to be a part of its current history.

T. H. ANDERSON,
Minister.

STATES LEGATION,
La Paz, Bolivia, August 30, 1892.

PERNAMBUCO-SENEGAL CABLE.

REPORT BY CONSUL STEVENS, OF PERNAMBUCO.

liance with the Department's request, I have the pleasure to sub-
ther items relating to the new cable now being laid between this
Louis, Senegal, Africa.

I was somewhat misinformed in relation to the new cable laid between this port and Rio de Janeiro, yet the mistake was of no serious import. As I stated in my previous communication, the Western and Brazilian Telegraph Company laid a new line between this port and Rio de Janeiro; since then they have duplexed both lines, virtually giving them four lines between the two ports. The cable steamer *Silvertown* performed this service.

The new cable line between this port and Senegal is called the South American Cable Company (limited). The head office of the company is in Cannon street, London, E. C. The capital of the company is £500,000, fully paid up. Among the directors are Robert K. Gray and Sir Charles Tupper. This cable is being laid by the India Rubber Gutta-percha Telegraph Works Company (limited), of Silvertown, London, and Beaumont, France, owners of the *Silvertown* and stockholders in the new company. This company has obtained a valuable concession from the Brazilian Government extending over a period of twenty-five years, the terms of which I am as yet unable to learn, but I am privately informed that it virtually amounts to a monopoly.

The steamship *Silvertown* returned here nearly three months ago with Mr. Robert Gray on board and proceeded hence to Rio de Janeiro. They had some difficulty in obtaining this concession to their satisfaction. They, however, overcame the opposition and are now proceeding with the work. The cable was completed from here to Fernando de Noronha about a week ago, and the benefits of this short connection are already apparent. As this island is nearly in the direct route between this port and Europe, we have already received notice of the passage of steamers.

The steamship *Silvertown* is now in Bahia taking in 1,000 tons of coal, and the manager of the company has just shown me a telegram stating that the steamer will arrive here on the 27th instant and proceed with quick dispatch to the island of Fernando de Noronha and will at once commence paying out the cable between that island and Senegal, Africa. They expect to complete the laying of the cable some time in the latter part of September.

At St. Louis, Senegal, this line will have connection with the Spanish submarine line.

The South American Cable Company has completed all its buildings at Fernando de Noronha and here. They have spared no expense. Their office in this city is elegantly and substantially furnished. Their electrical instruments and fixtures are of the best.

EDWIN STEVENS,
Consul.

UNITED STATES CONSULATE,
Pernambuco, August 23, 1892.

IMERCE AND INDUSTRIES OF COAHUILA.

REPORT BY CONSUL PECHET, OF PIEDRAS NEGRAS.

GENERAL REVIEW.

year (from July 1, 1891, to June 30, 1892) has been one of large losses and of commercial depression throughout the State of Coa- ness men have ventured upon no new enterprises, but have care- ded their resources, being well content if, happily, they might ercial shipwreck and maintain their credits unimpaired through d of depression. The conservative business methods that gener- have aided to minimize the usual consequences of dull times. ning of this fiscal year, with the conditions then prevailing, not huila, but throughout a large portion of the Republic, a close ild have foretold a dull and probably disastrous year of large

other conditions most favorable, excellent public health, a rong government, and consequent absence of hurtful political esulting abortive revolutions, Mexico should have made great ng that new road of national progress and wealth upon which c entered but a short decade since. Two chief factors have ecked this progress during the past year. One of these factors, l course, will disappear, and already bountiful rains of wide ex- e drought-stricken areas give presage and hope of abundant the coming year. The second factor is one beyond control rnment of Mexico and is contingent upon so many complex ing the whole civilized world that international conferences and ernmental legislation may alone bring relief. These two factors and loss are the prolonged droughts and steady and heavy de- value of silver.

DROUGHT AND AGRICULTURAL LOSSES.

ral years prior to 1891 the rainfall in the States of Chihuahua, urango, and portions of Zacatecas, Aguas Calientes, and Nuevo ant. In 1891 prolonged droughts prevailed over this immense rritory and continued through the planting season of 1892. l sore distress were only averted by the prompt and liberal action nd State governments in importing large amounts of corn from States, and selling it at actual cost to those having wherewith to tributing it to those without money.

of these years of drought can not be estimated save approx- tire crop failure in many districts, partial losses in other districts, of stock on the great cattle and horse ranges, and the large ney at high rates for foreign exchange paid for corn from the s are direct and computable losses. The indirect losses are far d less easily reckoned.

At the port of Piedras Negras alone there were imported from the United States 23,575,820 pounds, or 420,996 bushels, of corn in the eleven months from August 1, 1891, to June 30, 1892. This corn came from Kansas City, Mo., and cost at the frontier an average of 70 cents per bushel in United States coin. This corn paid a duty of 1 cent per kilogram (2.2046 pounds). A decree of the Federal Government remits the duty from July 1 to September 30, 1892, and, in consequence, corn shipments from the United States will be large.

During the past month abundant rains have fallen throughout Coahuila and eastern Durango, late planting has followed the first welcome rains, and in many districts a late and much-needed corn crop is probable, as corn planted as late as the first weeks of August will mature in most parts of Coahuila.

The upland stock ranges are rapidly benefiting by the rains, and stockmen hope they have seen the worst of their troubles, as the young grass is coming on, and water holes filling up.

DECLINE IN SILVER.

Mexico's chiefest export is the product of her silver mines, whether as coined dollars, bar bullion, silver-lead bullion, or as silver in crude ores exported for treatment. The value of Mexican silver in all forms exported exceeds that of all her other exports. The total export of silver for the year ended June 30, 1889, was about $38,000,000. A very slight decline in the market price of bar silver means a serious loss when such large sums are involved, and this loss assumes most onerous proportions when the value commercially of the Mexican silver dollar declines from 79 cents to 67 cents in United States coin, as it has during the past year. This wide range in the selling price of the standard Mexican dollar has advanced the rate of foreign exchange from a premium of $1.25 to $1.50. Mexico is a debtor nation, buying more than she sells, and an advance in one year of 25 cents in the rate of foreign exchange has been severely felt by the people of Mexico. As a result, all foreign importations, from the necessaries of life to the luxuries, have advanced in price.

MINING.

Coal.—The Sabinas coal mines continue their large output and find in their markets, both home and foreign, a demand in excess of their capacity to fill orders. During the past year extensive developments and added machinery have marked the administration of these great properties. These coal mines have now been worked on a large scale a number of years and have completely established the presence of extensive coal measures in Coahuila. The total output of coal in tons of 2,240 pounds for the year ended June 30, 1892, was 153,999 tons, as against 105,350 tons the preceding year, and of coke 12,141 tons, as against 4,553 tons. Of this output of 153,999 tons, 55,781 tons, invoiced at $264,608 in United States coin, ted to the United States from this port. The commercial suc- Sabinas coal fields has stimulated explorations in other portions a, and it is now well recognized that coal measures underlie the ion of the eastern half of the State and extend to and cross of the Rio Grande into Texas. The high price and large demand Mexico will undoubtedly lead to the exploration and working of properties in Coahuila in the near future. Already at the little Fuente, 5 miles from Piedras Negras, an extensive and most prom- property has been acquired by Mexico city capitalists. Prelimi- on a large scale has demonstrated the presence of valuable coal t admirably placed for economical mining. Hoisting works, and a spur completed to connect with the main track of the nternational Railroad are evidences of speedy development of coal mines, and, with the Fuente coal output added to the large om Sabinas, Coahuila will maintain her present preëminence as ate of Mexico.

s metals.—During the past year, despite the low price of silver, een much mining activity in Coahuila. The mining districts of Villa de Masguiz, and Cuatro Cienegas are gradually assuming . Many mines in these districts are now shipping ores to Mon- o Leon, where the large smelters established in the past two h a home market for fluxing and nonfluxing ores. The mining Sierra Mojada, in the extreme western and northern part of this strict, is one of the great mining camps of Mexico. The com- the railroad (Mexican Northern) from Escalon station, on the entral Railroad, to Sierra Mojada and the present rapid construc- branch of the Mexican International from Monclova to Sierra l remove all obstacles to the greater development of this famed ate camp. The monthly output of the Sierra Mojada mines is o tons. Formerly all this large tonnage of silver-lead ores was the United States. At present less than 30 per cent goes to the tes for reduction, and the balance is shipped to smelters at Mon- San Luis Potosi.

the past year a consular agency under this consulate has been es- Sierra Mojada.

STOCK-RAISING.

to continued drought, this industry has been much depressed. s of stock from scant grass and lack of water has been the ex- most range stock-owners. In the cattle-raising industry a steady nt over old methods is the rule. Ranges are being put under and subdivided into pastures, and graded stock is being imported. ly Coahuila stock (cattle and horses) found their best market in States. Our prohibitive tariff on live stock has closed this mar- r.

RAILROAD CONSTRUCTION.

In September, 1891, the extension of the Mexican International from Torreon to Durango city was commenced. This important extension will have a length of 253 kilometers, or about 156 miles, and the total mileage of the main trunk line of the Mexican International from Piedras Negras to Durango city will be 870 kilometers, or about 540 miles. This extension will be completed and open for traffic in October of this year, and must have important results upon the commerce and development of Durango.

The Mexican International Railroad Company has also commenced work upon a line from Monclova, on the main line, to Sierra Mojada. This line will have a total length, entirely within the State of Coahuila, of 155 miles. As it will traverse several important mining regions, as well as the rich agricultural district of Cuatro Cienegas, and terminate in one of the leading mining camps in Mexico, this extension will prove a most valuable auxiliary to the main line. This line will be completed by the early months of 1893.

Concessions have been granted by the Mexican Federal Government for the construction of several other lines within this State, but no work has been done upon any of them save certain preliminary surveys.

EXPORTS.

The total value of chief exports to all countries from this port for the fiscal year ended June 30, 1892, as shown in tables herewith, is $2,632,171.22. For the past four fiscal years the corresponding values were as follows: In 1889, $1,734,281.73; 1890, $2,302,994.01; 1891, $2,494,955.51; 1892, $2,632,171.22. The gain in 1891 over 1890 was $191,961.50, and the gain of 1892 over 1891 but $137,215.71, showing a decrease in the rate of gain. The percentage of increase in 1890 was over 25 per cent; in 1891, a little over 7 per cent; and in 1892 it has fallen to nearly 5 per cent.

This annually decreasing rate of gain in exports to all countries is entirely due to causes that have solely affected Mexican exports to the United States, because Mexican exports from this port to countries other than the United States show astonishing gains. These causes are chiefly two, viz, our present tariff, which has diminished ore exportations and entirely stopped live-stock exportation, and a division of export traffic consequent upon the opening of the Tampico route. Formerly Mexican exports for the United States and Europe from the States of Coahuila and Nuevo Leon crossed the frontier at Piedras Negras or Nuevo Laredo. The construction of the Monterey and Mexican Gulf road from a junction with the Mexican International in the State of Coahuila to tide water at Tampico and the establishment of lines of ocean steamers from Tampico to United States and European ports have naturally caused competition and a partial diversion of traffic.

g value of principal exports from Mexico to all countries through the port of Piedras Negras for the year ended June 30, 1892.

Articles.	Value.*	Articles.	Value.*
United States.		*To the United States*—Continued.	
	$2,666.00	Skins and hides of animals:	
inds, domestic	1,196.00	Cattle hides	$20,746.00
	215.00	Goatskins	176,349.00
	246.00	Seeds of all kinds	538.00
d leather	123.00	Sarsaparilla	135.00
its	271.00	Specimens of natural history	122.00
ctured of ixtle	459.00	Straw manufactures	124.00
		Sugar, crude	1,690.00
	2,961.00	Tin:	
	12,752.00	Plate	111.00
	177.00	In block	9,114.00
	303.00	Vegetables	395.00
		Watches and jewelry	156.00
minous)	175,771.00	Wines of all kinds	1,118.00
(culm)	778.00	Wood and manufactures of wood	296.00
	4,268.00	Wool and manufactures of wool	275.00
	111.00	Wool carpets	289.00
on apparel	150.00	Miscellaneous articles under $100 in value	925.00
	851.00		
cake	3,961.00		
linters")	6,034.00	Total to United States	986,887 00
nicals	614.00	*To all other countries.*	
lain and decorated	1,081.00	Bullion, silver-lead	1,460,685.00
	274.00	Copper:	
	1,095.00	In ingots	13,999.00
	117.00	Matte	12,919.60
ts and Indian effects	3,907.00	Goatskins	4,920.99
	32,061.00	Ixtle	31,971.68
es	239.00	Ores:	
	106.00	Antimonial	4,011.00
ures	148.00	Copper	37,489.60
	5,238.00	Silver-lead	30,986.30
	1,252.00	Silver	48,064.55
d and silver)	513,856.00	Sarsaparilla	236.50
factures	413.00		
s	193.00	Total to all other countries	1,645,284.22
tures	117.00		
	388.00	Grand total	2,632,171.22
nufactures	112.00		

* In United States coin.

s *to the United States.*—The chief losses in exports are on silver-
ixtle, live stock, and goatskins. The value of silver-lead ores
o the United States in 1890 was $958,432; in 1891, $637,520;
2, $513,856, less $63,990 worth of silver ores containing no lead
tiable. Exportations of live stock to the United States have
as follows: In 1890 the exports were $122,931; 1891, $15,873;
r $1,000. Ixtle exportations to the United States in 1891 were
$79,496, and in 1892 at $10,519. As ixtle exportations in bond
from this port have largely increased, this loss in value of ixtle
s to the United States is due to more favorable markets for this
er in Europe. Goatskins exported to the United States in 1891

were valued at $194,164.76, and in 1892 at $175,924.80. Th tirely due to shipments via Tampico. The gains in exports to States are confined chiefly to coal, cotton-seed oil cake, pecan ores, and cattle hides. Coal exports increased $72,496.65; th 1891 were 38,223 long tons, valued at $192,112.25, and in 1892 were 55,781 tons, valued at $264,608.90. In 1891 there were tions of silver ores free of lead, and hence nondutiable; in 189 shipped to the United States 171 tons, valued at $63,990.

The following comparative table, showing values of chief ports from this consular district during the past two fiscal yea $393,140.11 from the consular agency at Sierra Mojada that United States at El Paso, Tex.:

Table showing the value of the principal declared exports from the consu Piedras Negras during the fiscal years 1891 and 1892.

Articles.	Year ended June 30—		Increase.
	1891.	1892.	
Antimonial ores	$13,303.22		
Beans	3,878.13		
Bullion:			
Silver	26,584.10	$12,915.24	
Silver-lead	116,577.11		
Coal:			
Bituminous	192,112.25	264,608.90	$72,496.6
Screenings		1,266.22	1,266.
Coke	1,523.14		
Copper matte	4,075.39		
Cotton seed		1,145.26	1,145.
Oil cake	3,074.89	7,155.68	4,080.
Cotton waste ("linters")	5,855.07	7,185.28	1,330.
Hats, palm straw	1,741.35	263.12	
Horsehair	4,259.09	743.57	
Ixtle	79,496.52	10,579.69	
Live animals:			
Cattle	3,117.88		
Horses	5,520.28		
Mules	3,502.65		
Sheep	3,726.18		
Nuts, pecan		5,226.71	5,226.
Oranges	2,363.21	1,649.98	
Ores:			
Silver (free)		167,954.58	167,954.5
Silver-lead (dutiable)	365,031.78	536,356.82	171,325.0
Proprietary medicines	1,070.33	589.82	
Skins and hides of animals:			
Cattle hides	17,309.56	20,749.12	3,439.5
Deerskins	1,908.90		
Goat and kid skins	194,164.76	177,168.08	
Hogskins	2,018.36	245.29	
Mixed skins	2,318.49	337.50	
Sugar, crude	1,613.91	948.51	
Unenumerated articles under $1,000 in value	5,116.97	2,285.54	
Total	1,061,263.52	1,219,314.91	428,265.0
Net increase			158,051.3

s to Europe.—The total value of Mexican exports to Europe from
n bonded transit through the United States for the past four fiscal
own in the table submitted herewith. This statement reveals an
g gain each year. In 1889 the total value of such exports was
1890, $547,127; 1891, $1,068,718.75; and in 1892, $1,645,-
The total value of all exports to the United States in 1892 is
showing an excess in value of exports to Europe at this inland
exports to the United States of $658,397.22, or, to more strik-
rate a condition so unfavorable to our trade with Mexico, 62 per
e total value of Mexican exports from this port was shipped to
d 38 per cent to the United States. Another feature to be con-
that the greater portion of this sum of $1,645,284.22 of Mexican
d to Europe is paid in European imports to Mexico. An exam-
the table shows that the chief articles exported to Europe are
pounds of silver-lead bullion, valued at $1,460,685; 502,933
ixtle, valued at $31,971; 1,383,987 pounds of copper ore, valued
; 742,240 pounds of silver-lead ores, valued at $30,986.30; and
pounds of silver ores, valued at $48,064.55.

g the exports shipped from the port of Piedras Negras through the United States in transit to European ports during the past four fiscal years.

Articles.	1889.		1890.	
	Quantity.	Value.*	Quantity.	Value.*
	Pounds.		*Pounds.*	
r-lead	7,531,304	$377,041.00	9,890,001	$543,993.35
			31,950	1,597.50
			40,588	1,537.00
		377,041.00		547,127.85

Articles.	1891.		1892.	
	Quantity.	Value.*	Quantity.	Value.*
	Pounds.		*Pounds.*	
r-lead	15,428,747	$936,272.49	13,331,319	$1,460,685.00
			114,696	13,999.00
	357,512	29,897.00	202,560	12,919.60
			13,824	4,920.99
			502,933	31,971.68
	11,150	3,345.00		
l			194,008	4,011.00
	457,340	10,745.23	1,383,987	37,489.60
	1,322,024	88,509.03	742,240	30,986.30
			1,049,650	48,064.55
			3,730	236.50
		1,068,768.75		1,645,284.22

* In United States coin.

IMPORTS.

The table of imports from all countries shows a total value of $2,420,962, as compared with a valuation of $5,284,574 for the preceding fiscal year; this shows a total loss in importation to Mexico at this port of $2,863,612.

Importations in bond from all countries were valued at $889,718.76, as against a value of $1,054,467.69 for the fiscal year 1890–'91. The products of the United States shipped to this port in bond for benefit of customs drawback amounted in value to $51,068.45, as compared with $84,283, and consist chiefly of beer, sugar, petroleum, iron manufactures, and whisky. Deducting from the total value of importations in bond the value of $51,068.45, United States products in bond, and there remains for the value of European importations $838,650.31. The chief European articles of importation still continue to be steel rails, structural iron, machinery, drugs and chemicals, dyestuffs, aniline colors, paper and cardboard, hosiery; cotton, woolen, and silk goods; glassware, and shelf hardware.

To arrive at the value of importations from the United States we shall deduct the value of European importations from the total of importations from all countries; this will leave $1,582,311.69 as the value of United States exports entering Mexico at this port for the year 1891–'92, as compared with $4,314,389.79 in 1890–'91, a loss of $2,732,078.10. This very great loss is somewhat due to a diversion of traffic to other routes, but more largely due to the impoverished condition of Mexico through loss of crops and decline in silver.

A comparative study of the value of chief articles of import for the past two years shows that Mexico purchased less the past year than the preceding year of all lines of foreign articles classed as luxuries, while the increase in all lines of prime necessity is most marked. This may be well shown from the purchases of food products. In 1890–'91 Mexico purchased, through this port, food products valued at $238,098, and $375,811 in 1891–'92; and of this sum of $375,811, $235,757 were expended solely for corn to relieve the scarcity caused by crop failures.

The short cotton crop in Mexico is shown by the purchase of $448,970 worth of baled cotton, while in 1890–'91 but $228,789 worth was purchased.

The chief feature of loss in United States exports to Mexico is in live stock. In 1890–'91 we sold to Mexico live stock valued at $1,013,816 through this one port alone, and in 1891–'92 but $108,825, or a decrease in live-stock importations from the United States of $904,991. While all live-stock importations declined, the largest loss is on live hogs. In 1890–'91 53,453 live hogs, valued at $801,795, were entered at this port, and in 1891–'92 but 4,607 hogs, valued at $69,105. For this remarkable falling off in live-stock importations various causes are assigned; one cause is overstocked markets the former year and another the enlarged domestic output. The hog region of Mexico comprises portions of the States of Jalisco and

, a region abounding in lakes, running streams, grass, and mast chief agricultural product is corn. This region, within the past has been given railroad facilities by the completion of branch the main trunk line of the Mexican Central. The capacities of for hog-raising are undoubtedly very great, and it is claimed l and southern Mexico can draw all supplies of pork, bacon, and ed from Jalisco and Michoacan.

g the value of imports from all countries at Piedras Negras for the year ended June 30, 1892.

Articles.	Value.*	Articles.	Value.*
	$4,757.00	Paper and its manufactures	$33,447.00
unition	26,934.00	Saddlery	1,796.00
es	13,069.00	Silk:	
ial (cements, etc.)	16,613.00	Manufactures	8,190.00
ne and wax	7,955.00	Mixed with other materials	10,125.00
		Starch	1,784.00
	448,970.00	Stearine	5,371.00
res	290,881.00	Wagons, carriages, carts, etc	44,615.00
micals	74,343.00	Wines and liquors	37,119.00
lass wares	11,925.00	Wool manufactures	45,012.00
	375,811.00	Articles unclassed	210,344.00
	8,752.00	Total	2,420,962.00
	12,772.00	Total in 1890-'91	5,284,574.00
res.	8,861.00	Decrease	2,863,612.00
tures	5,320.00		
	2,494.00	Total imports from all countries in 1891-'92	2,420,962.00
	1,007.00	Less European imports	838,650.31
	90,102.00	Actual United States imports	1,582,311.69
	13,577.00		
	1,645.00	Actual United States imports in 1890-'91	4,314,389.79
s manufactures	184,368.00		
	281,489.00	Decrease	2,732,078.10
r manufactures	141,514.00		

*In United States coin.

FRONTIER COMMERCIAL STATISTICS.

ner reports I have called the attention of the Department to the of adopting methods for collecting reliable statistics of our export adjacent countries from our inland frontier ports. An experience ears has convinced me that our statistical knowledge of what we xico is only a shrewd guess, based upon such data as our collect-oms may secure from export shippers and our consuls can obtain e courtesy of Mexican customs officials.

oud upon the accuracy of our export statistics will be in a large moved under the operations of the act making appropriations for tive, executive, and judicial expenses of the Government for the ending June 30, 1893. This act requires railroad companies to the customs officers at the last port in the United States through commodities pass into foreign territory a manifest for each car, specifying kinds, quantities, and values of commodities contained in car under certain forms prescribed by the Secretary of the Treasury. This law is sufficiently comprehensive to secure accurate statistical data of railway exports, but it fails to take into account the large export trade between frontier towns on the border of the two countries. This export merchandise crosses the river frontier in wagons by bridge and ford and in boats. Under the law recently enacted collectors of customs at the frontier American towns can not require manifests to be filed at custom-houses showing kinds, quantities, and values, as in case of railway export shipments. The local trade across the Rio Grande frontier will aggregate a large sum annually, and should be known accurately to give our export statistics full value and credence.

The law recently enacted should be amended and enlarged in its scope, so as to compel the filing of a sworn list of all export shipments with the collector of customs at the last port on our frontier, whether exported in railway cars, by wagons, by boat, or any manner of vehicle.

EUGENE O. FECHET,
Consul.

UNITED STATES CONSULATE,
Piedras Negras, September 15, 1892.

WAGES AND COST OF LIVING IN MILAN.

REPORT BY CONSUL PEPPER.

In the last twenty-five years there has been much improvement in the wages of the working classes, especially in Lombardy. Ever since the unification of Italy their wages have gradually increased. One of the most striking evidences of this improved condition is the absence of beggars upon the streets—though wages are very low, they manage to get along without resorting to mendicancy.

A gentleman who came here from New York to purchase a glove establishment was surprised, when he made inquiry, to find that the glove-makers only received 50 cents per day for labor for which he paid $2.50, the hours being very much longer here.

An Italian who had just returned from the United States told me he was going to spend the remainder of his life in Italy. On being questioned, he said he had made enough in five years in the United States to keep him all the rest of his life in Italy. He was a laboring man.

I have frequently been asked to give some idea of the cost of living for Americans in Milan.

Many American students come here with the idea that living is cheaper than it is in the United States. This erroneous opinion is dispelled by a short experience of a few weeks. Many of the staple articles of food cost twice as much here, such as meat, tea, coffee, sugar (16 cents per pound), and butter. Fuel is dear, vegetables and fruit cheap. Servant hire is much cheaper here than in the United States. A good cook may be had for $6

. The highest wages paid to a servant are $10 per month, which
the housekeeper or butler.

e comfortably and healthily one must pay $30 per month for board.
ot find board, even of the poorest quality, for less than $20 per
This does not include washing, heat, or light. A family of three
ame here recently expecting to live on $60 per month, lessons in-
They were surprised and greatly disappointed to find that board
ld cost them $100 per month. Even such board as this is poorer
could obtain in the United States for the same money.

e, as many Italians do, upon a limited supply and inferior grade of
described in this report, is, of course, another thing. Indeed, I
scarcely possible for a foreigner to do it and retain his health.

nists and engineers receive from $1.40 to $2.50 per day. The
en of Italy work under a different system from that used in the
ates. They work in small divisions of from three to four or six
en, according to the kind and amount of work. At the head of
se small divisions is a skilled workman; the others are subordinates,
ny cases apprentices, and their wages are gauged according to the
table:

Table showing wages per day of eleven hours in Milan.

cupations.	Wages.	Occupations.	Wages.
s:		Other trades—Continued.	
rs	$0.60 to $0.70	Drivers—	
ers	.30 to .40	Draymen	$0.30 to $0.40
s	.70 to .80	Cab and carriage	.50 to .60
ants	.40 to .50	Street railway	.80 to 1.00
ntices	.10 to .30	Conductors	.90 to 1.20
	.80 to .90	Dyers	.50 to .75
ants	.40 to .60	Engineers	.50 to 1.00
ntices	.10 to .30	Farm laborers	.20 to .30
ons	.60 to .70	Furriers	.50 to 1.00
ants	.40 to .50	Gardeners	.50 to .75
ntices	.30 to .40	Hatters	.50 to 1.00
	.40 to .75	Laborers, porters, etc	.30 to .75
	.40 to .75	Lithographers	.40 to .75
		Printers	.40 to 1.00
	.40 to .80	Teachers in public schools—	
hs	.70 to .75	Principals	2.00 to 2.20
rs	.40 to .60	Assistants	1.00 to 1.20
	.60 to .75	Saddle and harness makers	.40 to .80
kers	1.00 to 2.00	Tanners	.40 to .80
akers (skilled)	1.00 to 1.20	Mechanics (skilled)	1.40 to 2.50
kers	.40 to .75	Tailors	1.00 to 1.60
ners	.80 to 1.00	Apprentices	.30 to .75
	.50 to .75	Telegraph operators	1.00 to 1.50
	.75 to 1.00	Telegraph messengers	.35 to .40
	.30 to .75	Weavers	1.00 to 1.40
	.50 to 1.00	Shoemakers	.80 to 1.00

country skilled bakers receive, besides their wages, breakfast and
Their food consists of vegetable soup and a pint of wine, with all

the bread they wish. On Sundays they have meat twice, with a pint of wine for breakfast and a quart for dinner. Also, every workman, be he skilled or not, receives a fee of 20 cents.

The city bakers work under an entirely different system. They receive no food, but work together in small groups or divisions, each division using in common one oven; therefore, the proprietors of large bakeries engage as few of these groups as possible, so as not to have to pay for extra fires. They are provided with everything necessary for making the bread, and each division is paid 70 cents for every 215 pounds of flour which they bake. The head baker of each division is paid weekly or monthly, according to the amount of flour each group has baked, and a division of the money is made between them according to prearrangement. This system gives them average wages of from 40 to 80 cents per day. The apprentices are supplied by the proprietor, and do not enter into the groups.

In addition to their daily wages, butchers receive meat three times a week, and also the tendons, etc., which can not be sold in the shop. These they sell, and from this source their wages are materially augmented.

The highest salary paid to a clerk in one of the largest dry-goods establishments of Milan is $300 per year. In some of the larger establishments the clerks receive their breakfasts (at noon) in addition to their wages.

As a rule, each farm hand rents for himself about 2 acres of land and a one-room house; if the house has more than one room, more than one family occupy it. For this house and ground he pays a yearly rent of about $10, and upon this ground is raised nearly everything that he and his family have to eat. It must be cultivated at night after his day's labor is over or by his wife and children. The different "farm hands," with their families, live close together and form a kind of small colony. Each colony will often own in common a cow, which they all help to feed, and the same may be said of any other animals they own. The milk of the cow is divided among them; some use it and others make butter of their share and sell it. Meat is eaten by these people once a month, and they have a glass of wine on Sunday only. When these farmers make cheese, which is once a year, they borrow the milk of all their neighbors with which to make the cheese, and the next person who makes cheese is paid back as many liters of milk as were borrowed from him. In this way each family is enabled to make its cheese for the year.

The laborers of Lombardy are industrious and thrifty, but, as far as I know, none of them are owners of land.

Although it is generally believed that rents are lower in Europe, I find, upon investigation, they are as high here as in the United States. For three rooms, generally up several flights of stairs, the price is from $60 to $70 per year. In this city of nearly 400,000 inhabitants there is not a workingman who owns his house.

The farm laborers are paid much less than those who work in the city. In summer, for about two months during the harvest, they receive 80 cents

t in the winter they receive much less. Their working day com-
h sunrise and closes with sunset. The workers in the rice fields
from 8 to 15 cents per day.

d, quality, and quantity of food eaten by these people is greatly
y circumstances, viz, the amount of wages earned, whether single
large or small family, whether the wife works or not, whether
n work, etc. The poorest class of workingmen eat for breakfast
they have no morning meal) corn-meal mush. The dinner is
f a vegetable soup, called "minestra." For a family of six they
of lard about 2 inches long, water, and a conglomeration of
of vegetable obtainable, such as potatoes, carrots, cabbage, peas,
ach, tomatoes, etc. Instead of lard, sometimes salted pork is
the favorite dish of the poorer classes of Lombardy. After this
quantity of salad, seasoned always with salt, pepper, oil, and
Bread is eaten with the salad. The Italian workmen drink a
ity of wine for breakfast, as well as for dinner, necessarily of a
r quality. The father of the family takes his bowl of vegetable
fth-rate restaurant, called an "osteria," and buys for himself a
a half of meat costing from 6 to 8 cents, and takes his half bottle
, while his wife and children remain at home with their bowl of
es of this kind are to be seen every day, the wife often request-
band and father to do this, as he is supposed to be the hardest-
mber of the family.

h their condition is much below that of the employed in our
rikes are very rare in Italy. This may arise from the great diffi-
orkingmen have of securing coöperation among themselves, aris-
e number of provinces each with its own characteristic econom-
on. Children, by the law of Italy, are not permitted to work
ninth and tenth years. Many of the laborers prefer an advance
wages to a reduction of the hours of labor. No serious move-
ng to shorter hours has been inaugurated here.

GEO. W. PEPPER,
Consul.

STATES CONSULATE,
Milan, September 6, 1892.

ENGLISH HOPS.

REPORT BY CONSUL-GENERAL NEW, OF LONDON.

ng to instruction of July 23, 1892, I have the honor to inclose
copy of the Brewers' Journal of September 15, which contains
nformation on the acreage and condition of the hop crop of Great

JOHN C. NEW,
Consul-General.

STATES CONSULATE-GENERAL,
London, September 16, 1892.

BRITISH HOPS.

[Inclosure in Consul-General New's report.—From the Brewers' Journal.]

The following table shows the imports of hops into and exports from the United Kingdom from September 1, 1891, to August 31, 1892, inclusive, as compared with those in the two former years:

Description.	Months of September to August.			Month ended August 31—		
	1891–'92.	1890–'91.	1889–'90.	1892.	1891.	1890.
	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.	Cwts.
Hop imports	204,282	175,506	209,874	2,026	3,969	9,601
Hop exports:						
British	5,596	4,804	10,570	172	223	131
Foreign	5,059	3,623	9,192	69	396	28
Total	10,655	8,427	19,762	241	619	159
Value of imports	£947,764	£1,007,739	£691,175	£9,931	£19,879	£27,403
Value of exports:						
British	38,516	52,511	45,224	1,192	1,659	551
Foreign	27,433	28,071	28,847	289	2,120	90
Total	65,949	80,582	74,069	1,481	3,779	641

The season 1891–'92 has finished up with very trivial imports of hops, and the year's total still falls short of that in 1889'–90. The last month's exports were also a mere bagatelle, and, while those for 1891–'92 were larger than in 1890–'91, they were much below the shipments hence in the previous year.

HOP NEWS.

The fine, bright, and hot weather which prevailed from the 12th until the 18th of August and several days subsequently, though not continuously, taken in conjunction with the thunderstorms that marked the latter half of the month, did an immense amount of good for the hop crop, the hot sun and intense heat bringing out the bur and turning it into hops, and the storms of thunder, lightning, and rain cleansing to a great extent the foulness caused by the heavy and most persistent attacks of vermin. But, unfortunately, during the last nine or ten days of the month there was a great deal too much wet for hops, as well as the corn, and the temperature underwent many sudden changes, which, together with the excessive moisture, assisted the spread of mold, against the inroads of which sulphur was found of little or no avail, as it was washed off almost as soon as put on. Then, too, there has been a series of strong gales from the southwest, which have wrought very serious mischief in many grounds, particularly those that had not been well protected on their southern and southwestern sides. Day after day the wind blew with the force of a moderate to a furious gale, and every plantation suffered more or less. The effect of the injury was most marked in the Goldings and other late sorts, which just at that time required nice, warm, still weather. The consequence has been that they have not developed in the way that they ought to have done, though the Goldings, taken as a whole, are a decidedly better crop, both in quantity and quality, than they have been for the past two or three seasons.

As we predicted would be the case, the 1892 crop is one of very variable quality, and mold has contributed even more than aphis blight to the deterioration that such a large proportion of the samples show and will yet show. The vermin attack, though a most serious one, was successfully grappled with by most planters; but in many instances we find that either no washing was done at all, or, if done, was undertaken much too late, when it did more harm than good—injuring the cones without destroying the lice, which had already made their way

. A good deal of benefit resulted to the badly smitten and unwashed gardens
ıg heat of the middle of the month, the sap being driven back and the vermin,
; of sustenance, dying off. The lightning that was so very prevalent during the
illed a lot, while the drenching rains washed the upper part of the bine fairly
nevertheless many grounds were partially blighted, and, in order to save the
al destruction, they had to be picked before they had arrived at maturity. As we
old has seriously affected a considerable proportion of the crop. Happily, how-
ges of this disease are not so extensive as in 1890, and we could point out many
which, even without any sulphuring at all, and in others with only one or two
early in the season, large and beautiful crops have been secured entirely free from
regard to the probable production this season, we think it will come out the
retty nearly equal to, that of last year. The acreage, according to the agricul-
collected on June 4, is 56,263 acres—only a slight increase on 1891, but 2,302
an in 1890. Of course, there will be some grounds left unpicked, as there in-
but compared to 1890 the number of acres passed over will be small indeed.
many large plantations were hopelessly ruined either by blight or mold or by
d. Things are not nearly so bad this season. The blight was undoubtedly
cool weather that set in about the third week in August. Had it continued hot,
ıg sun, the badly infested gardens must have succumbed; but, as it was, the
cases kept fairly well, and, having good condition in them, they have in most
n picked. Nor has mold been so frightfully prevalent as in 1890, although suf-
us to make its mark only too evident in the samples. Latterly, too, red mold
and has done much mischief.

as commenced in the early sorts—Prolifics, Hobbs's, Seale's Early Goldings, and
out August 25, and from that date it gradually extended, becoming pretty general
Sussex by the first week in September. Many of the big growers have had large
ickers employed; but, the corn harvest being in full swing at the same time as
ady for picking and the two harvests having to progress simultaneously, the
f the hop crop is likely to extend down to the end of September, if not running

KENT.

ty will produce, on the whole, an average crop, with a good proportion of first-
. Where sound and healthy, the hops are quite exceptional in color and
obably as fine as ever grown. We shall record the results that have come under
as nearly a connected order as to districts as can conveniently be done, but, ex-
shall keep the three hop districts—East Kent, Mid Kent, and the Weald—sepa-
nct, we will not pledge ourselves to accuracy in respect of the order in which we
e different parishes, though as a general rule they will run fairly regular.

Canterbury there have been large and, in the main, fairly good crops. At Harble-
arnes and Mr. A. Warde have done well; and they deserved to do well, both
d high and washed repeatedly. Their Bramlings are fully grown and of fine
ne of their largest pieces must have yielded 12, 14, and 15 cwts. per acre, and
ps look like coming down equally heavy. Their average all through will be a
Mr. Barnes is a very large grower, not only in this parish, but around Chilham,
o has a splendid crop. As stated in a previous issue of the Journal, he takes
aelmas the extensive hop farm of Mr. Warde, so that he bids fair to become the
er in East Kent. Mr. T. Sidney Cooper's plantations at Harbledown have also
y satisfactorily, his Bramlings running at places from 12 to 15 cwts. per acre and
being a larger crop than for several years past. Picking was commenced in this
26th ultimo, and will go on for at least another fortnight. Mr. T. G. Peckham,
, and Mr. Homewood have successfully overcome the attacks of vermin and
crops, though the results in regard to quantity did not, perhaps, reach the esti-
n the hops before they were picked. Generally speaking, the crops at Harble-

down looked heavier than they have turned out to be, and this may probably be the case with the later sorts on Mr. Barnes's, Mr. Warde's, and Mr. Cooper's grounds. Over at Mayton, where Mr. Neville Cooper has a well-managed hop farm, the Bramlings are excellent. At Tyler Hill and St. Stephen's Mr. G. Whiteman, another successful cultivator, has reaped his reward in a splendid growth of true Bramlings and Goldings, most of them grown on the wire-and-string principle, as, indeed, are the bulk of the hops in the Harbledown district. Heavy and sound growths are being secured from the famous and very extensive grounds of Mr. Charles Neame at Suppington and Merton, to the south of Canterbury. We should estimate these plantations at 14 cwts. per acre. Except on the higher ground, the hops were not much damaged by the gales, though, of course, they would have been better without the knocking about that they sustained. Not far off from these plantations are those of Mr. T. L. Collard on one side and those of Mr. G. B. Gipps on the other. Here, again, there are good crops, and quantity, on the whole, is satisfactory, though we were assured that, compared to estimates formed before picking, they come down light.

We shall now, before dealing with the district that lies east and northeast of Canterbury, take a look at a number of parishes that we inspected in the course of an entire day's tour. We commenced at Nackington, close to Canterbury, on the Petham road. Mr. T. L. Collard and Mr. George Mount began picking the first week in September, but progress was slow owing to the rain. Some of the more matured Bramlings were got down before the worst of the gales came, but a lot of damage was done to a considerable portion of the grounds. It was clearly visible on the first fine day that succeeded, the hops on the most exposed sides of the grounds being very brown. On the whole, however, the results have been satisfactory; quality wonderfully good. Mrs. R. Collard's gardens at "Sextrees" were next visited; these had not been washed at all, though they had been otherwise well done. The hops were found to be full of condition, and one piece of Bramlings presented a very bright appearance. Next we saw Mr. J. Baker White's well-managed plantations at Street End; these will come out well on the whole. Going on to Lower Hardres, we look at Mr. Cephas Maxted's grounds, half being devoted to Bramlings and the other half to Goldings. Picking was begun early, though it made but little progress until the second week in September, owing to the continued heavy rains. This was, we think, an advantage, as by keeping a few days longer the hops gained in brewing qualities. The fearful gales have considerably reduced the quantity of sound hops. Col. Laurie's grounds, a little further on, have been well cultivated, and the quality is good on the whole. We saw some small pieces in this parish which, not having been washed, were turning black. Next we inspected the grounds of Mr. Charles Hammond, at Swarling, Mr. T. Knight, and Mr. H. R. Mackay, all in the adjoining parish of Petham. There is an average growth in each case, and where they have escaped bruising by the gales and where the vermin were cleared off quality and condition are good. Mr. Knight's stringed ground presented a pretty appearance. Picking was commenced on the 3d and 5th at Petham. There was very little mold to be seen. Through the Kenfield estate the hops vary in point of quality. Mr. Pilcher has some good ones, and very fair growths have been obtained from the grounds formerly farmed either by the squire of Kenfield (the late Mr. Thomson) or his tenants and now superintended by Mr. G. Webb, the agent. At South Petham and Waltham Mr. W. H. Hammond has managed to get a nice crop without washing. Asked why washing is not done in this district, he informed us that it is simply on account of the difficulty of getting water there. It is as much as farmers can do to get enough for their stock, so that they are absolutely debarred from washing their hops. In some instances the effects of vermin in the cones were only too apparent. It is the old Goldings principally that have been blighted. The parishes of Chartham and Chilham were next visited. Several plantations presented a very dark appearance—almost black. We knew what this meant, and breaking open some of the hops we found lice very lively. At Chartham the grounds of Mr. Arthur Finn are good; he has washed repeatedly and vigorously and cultivated well. Mr. W. Harvey (Thruxted) and Mr. Colthup will get a fair lot—quality and condition good. At Chilham Mr. J. H. Harvey and Mr.

ve some healthy grounds, having washed and cultivated well. The gales have ed all gardens about, and the damage thus caused must reduce the quantity. have not been washed have shared the same fate as elsewhere; mold has also uality at places. In the same neighborhood Mr. Barnes (the great hop-grower vn) has a splendid crop—equal in quantity and quality to any in East Kent. stimate the crop from all the parishes comprised in this day's tour at 8 or 9 cwts. oming on from Chartham back to Canterbury, we pass the grounds of Mr. Corrie, Chapel; Mr. T. W. Palmer, at Milton Chapel; Mr. G. B. Gipps, at Howfield; t Cockering; and Mr. Leggett, at Thanington Court. Though there are good , it is the Howfield plantation alone that claims special notice, and here the b, no expense having been spared to produce it. Under the management of Mr. grounds have been cultivated in the very best manner and the plants washed appearance of "fly." The advantages of the wire-and-string principle of train- old-fashioned pole system have again been abundantly proved. The hops not althier and grow out better, but when gales come the damage is comparatively

now conveniently deal with the Ashford, Sittingbourne, and Faversham dis- ree largest and most important districts in East Kent. First, as to Ashford outh Kent. The famous plantations at Hinxhill (Mr. G. C. Rolfe's) are pro- and fine quality crop. Wind has bruised them at places, but otherwise the hops ight, large, and full of condition. Other grounds in the same parishes will give p, blight and mold affecting the quality. In Wye and Boughton Aluph parishes have washed and sulphured well; but, although the best grounds have been kept althy, there are some in which the lice got into the cones and turned them (as it lack at the core." The most successful cultivator here is Mr. Alfred Amos, who ly deserved the good crop he has got, for he has paid more attention to his anyone else for miles around. His system of cultivation is admirable. He ps off the lower leaves and branches, but has all the big leaves taken off all so as to admit the light and air. Other leading growers in these parishes also complimented upon the way in which they have "gone for" a crop, which have got. They will all do better even than last year, though the general aver- o parishes will be a low one. Hopes are entertained that the late hops in Wye e good, though not equal to the expectations formed before the tremendous average for the district will be about 9 cwts. per acre. Aphis blight has been l Ashford town and at Kingsnorth, but some gardens are clean and healthy. At Little Chart Sir Edward Dering and Maj. Cheesman are favored, while other fare rather badly unless the late kinds do better. At Westwell, Eastwell, and some of the hops were picked before they were ripe; those that have been ng have grown out larger and, although a little browned, are full of condition. Mr. T. Chapman has again had good luck—that is, by working for it. The p, it is estimated, will average 15 cwts. per acre, though some have set it much the adjoining parish of Willesborough there will be 8 to 9 cwts. per acre. At crop is a moderate one of varying degrees of quality. The parishes that com- . 2 district of South Kent, in which second-rate East Kents are mostly culti- crops ranging from 5 to 12 cwts. per acre. In many instances white mold is since the picking was begun red mold has made its appearance, and it is feared res will have to be left unpicked. The gales, too, have played sad havoc, de- was previously, in many instances, a splendid outlook. Fuggles are pretty fair, e whole so good as they promised to be in July. Picking was commenced at August and the beginning of September and will not be completed until the of this month. With regard to the Sittingbourne and Faversham districts, the much the same as elsewhere—well-farmed grounds and well-washed pieces are excellent crops—large growths of clean, bright hops, though tinged here and

there through the bruising caused by the gales, and not wholly free from mol
grounds, on the other hand, are bad; some discolored by blight, others seriou
mold. Around Sittingbourne we found capital growths on Mr. H. T. Bens
grounds at Teynham, the Messrs. Wakeley's at Rainham, Messrs. Honeyb
Manwaring's. These planters have worked hard all through the season to obt
healthy growths, and but for the extremely bad weather at the beginning of t
would have had the largest crops of any in East Kent. Some badly blight
gardens in the Sittingbourne district will be left unpicked, and serious losses wi
by the unfortunate planters. The best grounds in the Faversham district are
Graveney, Macknade, Preston, Sheldwich, Selling, Boughton, and Dunkirk.
ing growers have washed several times, beginning at the latter part of June a
right down to the last week in August. Mr. W. Miller, Mr. S. Miller, Mr.
Mr. L. Ashbee, Mr. H. Amos, Mr. F. Neame, Mr. Edwin Neame, Mr. W.
John Marten, Mr. H. A. Neame, and others have succeeded in producing mor
crops of Bramlings, free from vermin and mold; but there is not a ground that
the effects of the fearful gales. In numerous instances the blight has not be
and the bine has gone nearly black, which, of course, means deterioration of t

Picking in Mr. Gipps's well-managed plantation at Howletts (Bekesbourn
at the end of August. We never saw better-grown Bramlings than we had t
seeing here, and there are very few grounds in East Kent that can beat this
stand that washing was begun in June and was kept up at intervals until the
gust, not one or two, but seven or eight, machines being employed on each occa
sult was that by the time the hops were forming it was a difficult matter to find
louse. Mr. Gipps is the owner of the farm, and the farm is in his own occup
thoroughly competent hop manager. No expense is spared, and when pickin
people are got together from far and near, so that the crop can be gathered exp
stead of the work being spread over many weeks and a lot of the hops being
off because they can not be picked at once. Another farm of Mr. Gipps's is at
the Ashford road, within a short distance of Canterbury. Here also, as alread
is a splendid crop, grown upon the same plan as that adopted at Howlett's
wire-and-string principle on the latest and most improved style, by means of w
bearing branches can sustain but little damage by gales, no matter from wha
come. There is a plantation on a similar plan at Littlebourne, that of Mr.
who also has a magnificent crop, particularly of Bramlings. Other favored g
tlebourne are Mr. Montague Kingsford, Mr. David Collard, and Mr. D. T.
well-sheltered ground of the Marquis Conyngham, in the old lane leading from
to Canterbury, which has been a hop garden from time immemorial (there is n
the parish who knows how long ago it was planted), has come out well again,
cellent management and cultivation. We should think that the several gro
mentioned in this paragraph will average 10 cwts. to the acre of sound hops.
ner, Mr. B. W. Tassell, and Mr. Charles Collard (Patrixbourne and St. Paul's
have nearly finished picking. Mr. Gardner and Mr. Tassell had some good
hops, but where right the quality is excellent. Mr. Collard washed his grou
and completely mastered the insect enemy. His Bramlings were a capital cr
come down so heavily as they looked, as they were estimated from 1 to 2 cwts.
than they actually came down at. At Bishopsbourne and Bridge the grounds
inspected are those of Mr. Matthew Bell, Lord Conyngham, and Mr. H.
These, considering the season, are fairly good, but there was much damage
Some moderately good growths will come (from parishes around and near Ca
the grounds of Mr. Chapman, Hoath Court; Mrs. Baker, St. Stephen's; Mr.
Mr. Ingleton, Tyler Hill; and good lots from Mr. T. Wotton, Sturry; Ea
Hoath; Mr. Douglas Collard, Stodmarsh; and Mr. Spencer Collard, Ickham.

'ingham and Ash districts there will be a nice lot of Bramlings from a great s and a better crop of Goldings than has been produced for the past two years, wet, boisterous, and cool weather lately experienced has prevented them from in the way that they promised doing. The parishes of Goodnestone, Wickham, Guilton, Woodnesborough, etc., will give an average outturn. The most suc- rs this year in and around Ash-next-Sandwich are Mr. Walter Petley and Mr. d at Woodnesborough Mr. F. Neame. These planters have been unsparing in oth in respect of cultivation and washing, nothing being left undone to produce althy crops. Mr. Petley in particular is to be commended; his two grounds at uilton are striking examples of thorough and systematic treatment. One of the ost practical of East Kent hop-growers is Mr. Harvey, of Each, near Sandwich. l all the good and bad seasons for forty years, and the present one he regards as g and anxious of all. He has some very good hops himself and some that he dissatisfied with, though he frankly admits that it was his own fault, having put until too late a period. Mr. Elgar, Mr. Robinson, Mr. Miles, Mr. Plumptre, Mr. Nethersole, and others have done fairly well.

e of Thanet a few large and good crops have been grown, but the damage done has been most disastrous, only those grounds that were securely protected by utsides escaping the worst effects. Where at all exposed the poles were blown ings snapped, while the lashing and bruising knocked the hops about cruelly. blight, much deterioration of quality has been caused by mold, which is always ble in this district in wet, cold weather. The Thanet crop will be a variable nting one.

other portions of East Kent that one would like to write about; but we have ed so much space to the premier districts of the country that we must pass them general observation that where they are healthy and strong the hops are mag- ality, while in cases where aphis blight and mold were allowed to get the mas- ts are very disappointing. Mold has spread rapidly since the beginning of this

ur attention to Mid Kent, we must first notice the parishes of Boxley, East and h, the Barmings, the Suttons, Capel and Paddock Wood, Brenchley, Lamber- g (already incidentally mentioned in connection with Marden, in the Weald, it adjoins), and the Tudeley and Tunbridge districts. In all these places, e are badly blighted gardens—gone bad through utter neglect or careless man- e crops, generally speaking, will be large in quantity and of good quality. At rowths are from 10 to 12 cwts. per acre, even after making allowance for the used by the gales. The early sorts might, it is true, be better in respect of the ps, but the Bramlings and Goldings are not only heavy, but, on the whole, of lity. Most of the growers washed repeatedly, and their hops are quite free We think that the old Goldings grown here will be hard to beat anywhere in e Farleighs the grounds that for many years were so successfully cultivated by Herbert Ellis, those of Mr. Herbert Lenley and Mr. Ambrose Warde, although ed at places by the boisterous winds, are giving capital results. What the aver- ave been if there had been no gales we need not stop to speculate about, but he yield is a big one, while the quality, owing, of course, to the splendid culti- e persistent washing, is first class. Goldings are largely grown in these par- once in a while the crop of these choice hops will be a very satisfactory one. orts are also very satisfactory both in quantity and quality. In the other parishes ed there are also large and good quality growths. Mr. T. H. Oyler, Mr. J. T. . R. Tompsett, Mr. T. Manwaring, Mr. F. Dean, Mr. C. Hammond, Mr. W. James Hartridge, Mr. Children, Mr. J. Abrey, and several other leading grow- rewarded for their pains, and, let us hope, will be repaid for the money they d, in order to grow hops that shall be a credit to their respective districts. They have had undoubtedly one of the most trying and anxious seasons on record, and it is disheartening to look upon some gardens that have turned out simply awful; but one has to consider the general and not an individual result, and, speaking of these parishes generally, it is a source of great satisfaction to be able to say that the crops are large and good, especially after the fearful weather lately experienced. In the Tudeley and Tunbridge districts the growths in the best grounds will range from 12 to 15 cwts. an acre, and, though somewhat off color at places, the quality, on the whole, will be sound and rich. The Colgates, a late sort, promise to be better than of late years, but they will not be of good quality unless the weather favors them. East and West Peckham, Nettlestead, Lenham, Linton, Loose, and Boughton Monchelsea, Aylesford and Ditton, Langley, Mereworth, the Wrotham district, Bearsted, Wateringbury, Fawkham, the Rochester district, and the Crays, will produce fair crops on the whole.

The Weald of Kent will have a very variable growth, in quantity ranging from 4 to 15 and perhaps 16 or 17 cwts. to the acre and in quality varying from most inferior to the best of the year. It has been a fearfully trying time with the majority of growers. The aphis visitation was one of the severest ever experienced. Mold has been exceedingly troublesome in many places; the grounds have been soddened over and over again by the tropical rains of August, and the storms and gales have been terrific. At Headcorn we found that a considerable proportion of the hops had already been gathered, and the samples we inspected at the oasts were fairly good; there was capital condition and plenty of "gold dust," though the color was not particularly good. The hops that were being picked on the occasion of our visit showed the effects of the gales very markedly, but here and there a piece could be seen that looked very bright and healthy. The parish will yield more than in 1890, but not so many as last year.

At Cranbrook and Sissinghurst the crop promised towards the close of August to be quite equal to that of 1891, and the grounds that had been thoroughly and judiciously washed looked like turning out from 15 cwts. to a ton per acre. The continuous rains from August 28 to September 2 and the gales between those dates played havoc in many gardens, especially where the hops were weak through the blight (not having been washed) and where mold had struck them. The result will be a crop under that of last year, and the diseased hops will show up too prominently in the sample. The Prolifics have been heavy, but a lot of these were picked before they were ripe on account of mold. At Benenden there are some exceptionally good growths; indeed, the entire parish has been rather favored, and the best-farmed grounds, like those of Lord Cranbrook for instance, have produced a splendid lot of hops; at places, however, mold has done some damage, and some of the hops, though looking exceedingly well on the outsides, when examined have been found to contain lice in an active and thriving condition. In and around Biddenden sulphuring has had to be done repeatedly, the mold having been very threatening. Washing also was carried on repeatedly at several places. We saw some good pieces at Bishopden Farm and at Hanmer's Mill, which looked like doing 14 to 15 cwts. per acre; also at Omenden and neighborhood, where from 10 to 12 cwts. of clean, healthy hops will be secured. In Rolvenden parish, where the hops have been well cultivated and the blight was kept under, the crops are very fair, but mold has been too rife in places. At Marden and Yalding the plantations have kept pretty healthy, thanks to good farming, copious washing, and frequent sulphuring. The gales have done more damage than anything else, and on the outside parts of the grounds the hops are very brown. The early and hardy sorts so extensively grown in these parishes have been heavy crops. Successful results have been obtained by the leading growers, particularly Mr. T. Hartridge and Mr. S. Day, who have, as usual, done everything that possibly could be done to keep their grounds healthy. At Hawhurst the best farmers have got the best hops. The growth throughout the parish is about an average; quality very variable. At Tenterden the Fuggles have come down well and are, generally speaking, a very healthy, well-conditioned crop. In many grounds, however, the damage done by the

old is serious, and brown samples will be plentiful. A large quantity were
e the worst of the gales came, and these are exceedingly fine in quality. It is
'uggles grow to the size they have done this season at Tenterden. In the par-
len the results of good farming and washing from an early stage of the aphis
n in heavy and healthy crops. Gales have played havoc in unprotected grounds,
of course, improve the condition of the crop anywhere. Some of the grounds
have not done much; but, generally speaking, Smarden comes out exceedingly
he best, certainly one of the best, of the Weald parishes. In Staplehurst parish,
'rittenden and the neighborhood, picking became general in the first week of
The coarser sorts are fairly healthy and have come down heavy; later kinds
much from the bad weather and mold. A' High Halden the crop is "spotty,"
ery troublesome in the old plantations. The parish of Goudhurst is decidedly
cially in respect of the early sorts, which have come down very satisfactorily.
ted prior to the gales that the crop generally would beat the record; but this will
e now, though it will be a very big crop.

SUSSEX.

ucing districts of Sussex vary considerably, as might be expected in a year like
Rye district (around Rye Union, Ore, Winchelsea, Peasmarsh, etc.) picking
nong the early sorts at the end of August. Some grounds are clean and healthy,
ths are quite up to the average. In others the hops are hopelessly blighted and
ame wretched appearance that they did in 1890. Happily, there are not so
l gardens as in that season. Towards Hastings we found a few very bright
oped pieces. At Hurstmonceux the unprotected gardens suffered sadly from
September gales, and the hops have not grown out well since. Mold, which
troublesome, became serious after the wet weather, being further encouraged
emperature. On the whole, however, there is a good growth of hops. At
Mountfield there is a fair average in the best grounds, but blight and mold
the quality of the crop in others. Fuggles, Goldings, and Jones's are
sively in and around Ticehurst, and a lot of these were picked before they
at maturity, in order to save them from "going off," lice having lodged
the cones, and others being touched with mold, which took a fresh start
vy, cold rains. Washing was done by all the leading growers, but it did not
e clear the whole of the vermin off. Some of the Fuggles grounds are
vily—10, 12, 14, 15, and 17 cwts. to the acre, the entire district averaging be-
8 cwts. round. Needless to say, the gales did an immense amount of mischief,
uch in the stringed as in the unstringed plantations. The advantage of training
string-and-wire principle has never been more clearly demonstrated than this
we were glad to find that many who had hitherto been skeptical about it have
nverted and will next season adopt the stringing method. In the parish of Bur-
a big crop of Fuggles on Mr. Wickham's farm; the hops were clean, bright,
ll grown out. We may also favorably mention the hops of Mr. Jesse Piper and
ing. The Colgates in this district were checked in development by the extremely
that followed the heavy rains and gales; but they still promise to be a better
late years, provided the mold does not get at them. The higher temperature at
ast week has helped them.

—In this parish the growths show various qualities, but where good they are
average condition.

d.—Here there are a few good lots, but the complaint is general that the hops

t.—The gales and mold have seriously affected some of the grounds, but several
s will be produced.

Battle.—A tolerably fair crop; but vermin and mold have been very tro quality is deteriorated by both.

Frant.—Some few grounds are bad; others are an average in quantity quality. The Colgates have yet much lost ground to fetch up.

Etchingham.—Moderate crops are being secured from the grounds of thre vering growers.

Flimwell.—A few fair growths, others disappointing both in quantity and

Northiam.—Though some grounds come down well, others are much belov Mr. Mannington has a nice crop.

Midhurst.—But for the gales the crop here would have been a good one g some will be variable, while others could scarcely be better.

Brede.—Badly blighted pieces are nearly black; clean grounds are yiel good quality.

Rotherfield.—Washing and sulphuring were attended by good results, seriously damaged large quantities of even the soundest hops; about an avera

Ninfield.—Some of the grounds here are yielding 8 and 10 cwts. an acre;

Dallington.—Results rather disappointing, but here and there growths are

Sedlescombe.—A few grounds coming down well with average quality; oth blighted, and picked, as a consequence, before they were matured.

Whatlington.—Mold is prevalent in some grounds, and the wet, boistero done much mischief. The earlies are fair; later sorts good, bad, and indiffer

SURREY AND HANTS.

In our August report we remarked that Surrey might perhaps grow ar though the appearances were rather against its doing so. It may be safely Surrey can not grow an average crop. The blight has been severely felt in many cially those that were not washed, and the hops from these will be short exceedingly variable quality—some very good, almost as good, in fact, as in th dens, others about as bad as any that will be put upon the market. In wh Farnham Town the average growth is a low one, and even the celebrated "H is not up to the average standard. Many grounds were severely attacked except where washing was persevered in and done well, the bine has assum healthy hue, showing that it is blighted. There are hops, it is true, but when are found to be turning black at the strig. The sound and healthy gardens to 12 cwts. per acre of excellent quality, but the average for the whole parish be more than 6 cwts. Country Farnham will do better, however. There the tion of the gardens is very fair, and in the parishes of Binstead, Bentley, D Frensham both the quantity and quality will be good. The average of the should estimate at from 8 to 9 cwts. per acre. Mr. C. Lake, at Binstead, and was able to begin the ingathering at an early date. In the Oxted distric crop is not up to the average. With regard to Hampshire, there are heavy g Alton, Petersfield, and Odiham, and the general quality will be good, though will be affected as a result of the browning which a lot of the hops sustaine Winchfield, Froyle, Kingsley, and Crondall will not equal last year's prod quality, on the whole, will be excellent.

WORCESTERSHIRE AND HEREFORDSHIRE.

These districts have been severely smitten with vermin; but the majority have succeeded in overcoming the attack by systematic washing, and the resul tions is seen in large growths of sound, bright hops. Some, however, have n in such cases the blight is about as bad as we have ever seen it, many garde sorry spectacle. Mold, also, has this year been very troublesome—certainly usual, though it has been kept in check at most places by sulphuring. In

e will be a good proportion of sound, bright, well-grown hops at Leigh Linton
Tenbury (notably from the Eardiston plantations), Ledbury, Bosbury, etc., and a
s at Knighton-on-Teme and Clifton-on-Teme. Two-thirds of a crop seems to be
neral estimate right through. In the Hereford district such parishes as Weston
embridge, Woodmanton, Leominster, Kingsland, Bishop's Froome, and Endale
mise quite if not more than an average crop, and generally of excellent quality.
owever, the blight was so heavy that washing failed to keep it under, and in
ces the hops will be very poor in quality, and perhaps not worth picking. Mold
ne serious mischief, and it has been running very fast during the past fortnight.
ereford the damage from both blight and mold has spoiled a large proportion of
icking in Worcester and Hereford did not become general until Monday last.

LATEST AND ADDITIONAL NOTES.

leased to find that the hops are keeping well on the whole, and that, though the
hort of the estimates formed by the growers themselves, the general quality is
o be very fair. The following additional notes will be read with interest:
ng (Mid Kent) Mr. T. Phillips is likely to have a big yield; he has got quite a
f pickers at work. The Messrs. Chambers, of Yalding, the Fairleighs, and other
Mid Kent are favored growers. Mr. A. Thirkell, at Paddock Wood, has already
large quantity of fine quality hops. In the Marden district of the Weald one or
look like averaging not far short of a ton per acre. At Headcorn (Weald) some
averaging 12 to 14 cwts., others only 4 cwts. At Goudhurst (also in the Weald)
growths are heavy. Around Maidstone the results fail to come up to estimates;
ng applies to the parish of Hinxhill (Ashford district), though the quality on the
ellent. The Goldings in East and Mid Kent are improving very much. In two
ne best grounds in the neighborhood of Canterbury the Bramlings are averaging
acre of fine quality. Mr. Cooper's crops at Harbledown, as far as the picking
ave averaged about 10 cwts. Mr. Petley's Bramling growth from the Wingham
Mr. G. Whiteman's at Tyler Hill (Canterbury), will, we should think, be hard
where. At Sevington, in the Ashford district, the estimated yield is not being
the quality is superb. The latest indications with regard to the crop of the
Goldings and Weald of Kent and Sussex Colgates are more favorable; of both
s now likely to be a good growth, the warmer weather that set in on Saturday
r benefit.

s been a decided improvement in the crop in the Worcester district since last
warm weather and hot sunshine have put a great deal of condition into the hops,
the late sorts to develop finely. There is now every probability, with a contin-
orable weather, of the Worcester district growing a crop equal in quantity to that
nd consisting of a large proportion of first-rate quality.

NEW HOPS.

pocket of this year's Worcester hops passed the public scales on Friday, the 12th
ey were grown by Mr. H. T. Taylor, of Showle Court, Ledbury, and purchased
Edward Webb & Sons, hop and seed merchants, Wordsley, Stourbridge, who
Mr. Benjamin Elwell, of the Delph Brewery, Brierley Hill, at £10 per cwt.

ake, of Binsted, for the fourth year in succession, sent to market the first pocket
hops of the year's growth. It was consigned to Messrs. Hook & Graham, hop
igh street, Borough, who sold it to Mr. C. H. Kiln, hop merchant, Woking, and
orwarded by him to Mr. Walter Kill, Bell Vale Brewery, Haslemere.

pocket of new Hereford hops was weighed over the public scales at Hereford
by the grower, Mr. Sam. Smith, of Woodmanton, and sold to Messrs. Charles
Son, the Hereford Brewery, at £10 10s. per cwt. The hops are of the descrip-
s Early Goldings; the quality was very good.

HOP ACREAGE IN ENGLAND.

The following table shows the acreage under hops in England, as retur
in the years 1890, 1891, and 1892:

Counties.	1890.	1
	Acres.	*A*
Berks	11	
Gloucester	*11	
Hants	2,614	
Hereford	*6,077	
Kent	33,525	3
Notts	14	
Salop	*98	
Suffolk	*25	
Surrey	1,874	
Sussex	6,787	
Worcester	*2,925	
Total	*53,961	5

* These acreages do not agree with those given in the agricultural returns of 1890, owin
county of Gloucester and 4 acres in the county of Suffolk having been originally returned i
returns for parts of the counties of Hereford, Salop, and Worcester having been originally
instead of statute acres, causing a reduction of 442 acres in Hereford, 12 in Salop, and 133 i

THE COMINO TREE OF COLOMBIA.

REPORT BY VICE-CONSUL SANTA MARIA, OF MEDELLIN

By parcel post I forward a small box made of "comino c
taining seeds of this beautiful tree, which, I presume, does not
United States.

This tree, called "comino," produces an excellent wood fo
cabinetmakers and contains some exceptional properties, not or
class furniture, but for building purposes. The common kin
is very much appreciated for house-building, its merit being tha
fect proof against all wood-destroying insects so prevalent in
Colombia. It is a well-known fact that all kinds of timber use
ing purposes in this country are assailed and destroyed within a
of time by insects called "comejen," a winged insect; and a
of common timber is fought shy of by all purchasers of prope
property built of comino timber will stand strong and unchang
and is unaffected by either insects, water, soil, or climate.

There is another kind of comino wood having the same p
above described, but commanding a very high price and use
veneering purposes. It is of a beautiful dark and light undulat
a yellowish tortoise-shell appearance, as will be seen by the sma
with the seed. High-class furniture veneered with this kind
called here "comino crespo," presents a magnificent appear
bringing a high price if well worked and properly finished.

ree is especially grown in the department of Antioquia, and also , handsome ornament to a country place. You will likewise find box of seed some leaves which I have picked from some plants in y home.

omino above described can be successfully cultivated at a tempera-tween 18° and 20° C. I have no doubt but that if it can be cul-d acclimated in the United States this beautiful and wonderful be a great and an important acquisition to the American wood-

lly developed tree of comino can yield four hundred pieces, as Two hundred boards 9 feet long, 10 inches wide, by 1 inch thick, of them can be sold for $1.20; two hundred girders 9 feet long, 4 e, by 2 inches thick, and each is sold for $1. Besides, the branches are utilized for small columns for windows and for other purposes, ry thin or exiguous ones for fuel, although it burns very badly, great deal of smoke.

omino tree is not the *Sandalo citrino* of Ceylon, Brazil, and China, ved by some.

LUCIANO SANTA MARIA,
Vice-Consul.

D STATES CONSULATE,
Medellin, August 16, 1892.

BUTTER-MAKING IN FINISTÈRE.

REPORT BY CONSUL DUPIN, OF NANTES.

; a recent visit to Morlaix I visited the several factories where nanufactured, and submit the following report as of possible inter-erican butter-makers.

rlaix the butter industry is very important, the total yearly exporta-nting to 13,000,000 francs. Six houses are engaged in this industry t butter to England, Norway and Sweden, the East and West d to South America. The butter for these markets is not manu- Morlaix. It is purchased in small or large quantities from farmers he country and is sent to Morlaix in large willow baskets con-out 200 pounds each. All qualities of butter are accepted. At actories the butter is emptied into large kneading troughs, where d, and then worked over by hand with very large wooden spoons hat special purpose. It is next forced through the fluted rollers of g mill worked by steam power. These two operations serve to atever milk or water remains in the butter, a very important point eservation. Up to this point all the butter for exportation is the same manner.

est grade, which is shipped to England, Norway, Sweden, and to cities of France, is, after being washed (which is done only when

necessity requires, as it is not advantageous for the preserv
butter), worked on a circular table with fluted rollers identical
in American creameries. Steam power is employed to move the
the same table the salting and coloring is done during the manipul
grade of butter receives from 5 to 6 per cent of salt, and the c
of a light gilt. The butter is packed in earthen jars containing
60 pounds of butter, according to size; white tissue paper is
butter and salt spread over the paper; the jar is covered with s
and hoops of straw put around it to prevent breakage; it is th
shipment. This butter is excellent for kitchen and pastry use,
keep well for from six to eight months.

The butter exported to South America, most especially to B
the East and West Indies, is of an inferior grade. After pas
the kneading mill it is worked, salted, and colored on the sam
with the same rollers as the pastry butter, with this difference:
washed; (2) it is salted at the rate of from 12 to 13 per cen
salts at the rate of 18 per cent); (3) it is highly colored. Th
to Brazil is of a better quality than that shipped to Guadeloupe
West India Islands. It is of a deep orange color, while the p
is colored a shade of red resembling very nearly the color of a
and is sold to the negroes, who prefer it on account of its red
butter is packed in kegs made of American black oak holdi
pounds. Strong white tissue paper is put over the butter, inste
and a layer of salt is spread over the paper, the bottom of th
similarly arranged before packing the butter. The keg is then
ready for shipment. The butter so prepared keeps well for
twelve months.

In all cases the matter used in coloring is a vegetable subs
"roucou," imported in the form of paste from Cayenne a
Indies, and each manufacturer prepares it as he chooses. This
done by mixing the paste with olive oil and adding saffron
quantity to obtain the right color. In all cases the salt used is p
salt, the use of which is said to be important for the preservation

The house of Victor Cannes, at Morlaix, asserts that of la
lost much of their trade with Guadeloupe through American firm
say, furnish butter to that country at such a low figure that Mo
compete with them. This firm, besides preparing butter for
manufactures a very fine quality of table butter for home consu
is made in a regular creamery, the apparatus employed being
system, known as the centrifugal power, for producing cream, a
ceived a gold medal at the Paris Exposition of 1889. Steam p
in this creamery. The milk is purchased at the rate of 3 cen
and after all the cream is extracted from it a certain quantity o
returned to the farmer and the remainder sold at the rate of 1 ce
thereby enabling the manufacturer to sell the creamery butter

This butter is sold at Morlaix, but is sent particularly to Paris
rge cities in baskets containing from 5 to 20 pounds in pound
nd cakes. It is but lightly salted, straw color, and of delicious
wing to the process by which it is made, does not keep long, and
efore be exported.

H. DE SALLIER DUPIN,
Consul.

STATES CONSULATE,
Nantes, September 16, 1892.

THE WORLD'S SUGAR CROP OF 1892.

REPORT BY CONSUL-GENERAL MASON, OF FRANKFORT.

ared during the prolonged drought which prevailed in Germany
ast summer that the lack of moisture might seriously affect the
t sugar in this country, as well as in France and Austria. It
however—and particularly was this true in Germany—that, while
re smaller and the amount of juice which they contained pro-
less than during the previous year, it was relatively more con-
sweet, so that the amount of saccharine matter remained about

s are now gathered and the crop worked up to a point which
sis for accurate estimates of the total sugar crop of the year,
koned from the beginning of September, 1892, until the end of
3, as follows:

Country.	1890-'91.	1891-'92.	1892-'93.
	Tons.	*Tons.*	*Tons.*
	1,331,965	1,198,156	1,200,000
	778,473	786,566	750,000
	694,037	650,377	625,000
	544,162	560,000	480,000
	205,623	180,377	200,000
	61,307	37,451	65,000
	80,000	78,000	80,000
	3,695,567	3,490,927	3,400,000

l European beet-sugar crop will be, therefore, according to this
,000 tons less than that of last year and 295,000 tons less than
of 1890-'91. Unless there should be a corresponding increase
r to meet this deficit, the outlook would seem to promise higher
sugar market. A careful estimate recently made and published
rg, the center of the German sugar industry, puts the cane-sugar
present year, including all countries except India and Australia,
tons, against 2,795,000 tons for 1891-'92 and 2,529,536 tons
n of 1890-'91. There is therefore by this calculation, in which
put down for 225,000 tons, not only no increase, but a net de-

crease of 35,500 tons as compared with the same sugar produ vious year, and there remains an aggregate supply of both b sugar as follows:

Description.	1890-'91.	189
	Tons.	*T*
Beet sugar (Europe)	3,695,568	3,49
Cane sugar	2,529,536	2,79
Total	6,225,104	6,28

This is a deficit of 125,427 tons in comparison with the cro There still remains one unknown quantity to meet the foregoi that is the beet-sugar product of the United States for the cur statistics for which are not yet available at this distance. If t our home beet-sugar product this year is equal to 125,000 ton total sugar supply for the current season will be substantially that of the preceding year.

FRANK H. M

Consu

UNITED STATES CONSULATE-GENERAL,
Frankfort, November 20, 1892.

AFFAIRS IN TUXPAN.

REPORT BY CONSUL DRAYTON.

In this report of the third quarter ended September 30, 1 state that, notwithstanding the depression in business, the this quarter amounted to $352,597.09, showing an increase of compared with the preceding quarter. There is more produc European markets than formerly, and also more imports from t the difference in exchange making both purchases and freight from the United States.

Merchants say that they would rather purchase goods in the but that, exchange being unsettled and at a premium of 1.5 p that in Europe is only 1.3 per cent, making a difference of freight also being less according to exchange, they are forc European markets until the exchange question is decided and t determined.

The past season has been very hot and dry, causing a grea ness in the surrounding country, also a shortening in the crops Corn and all vegetables are very high and will continue to be six months. The rains which have come were too late to be of the present crop.

JOHN DRA

UNITED STATES CONSULATE,
Tuxpan, October 28, 1892.

TRADE OF BARBADOS.

REPORT BY CONSUL DIMMICK.

bados the year 1891 was eventful. A drought that prevailed dur- part of the year had a serious effect on the young crop of sugar ventually caused it to fall far below the average in quantity, as in the statistics of this report.

unt of exports for 1891 was the smallest that had been made for Later in the year an insect known as the "shot-borer" ap- ng the canes with the most disastrous results. Everything pos- one by the planters to prevent the spread of and to eradicate with little satisfaction, and, though not as badly as formerly, the ll suffering.

nly during the latter part of the year that the legislature of the ed to awaken to the meaning of section 3 of the McKinley bill, e that it might refer to them. They became alarmed and took ure the United States of their commercial good will. Their led to action on the part of the other West India colonies.

Barbados adopted a new tariff, which is, when compared with the at least a slight degree, made beneficial to the United States.

ater portion of the imports came from the United States, while ts more than one-half went to the United States.

unt of tonnage in navigation in 1891 was slightly less than in ng year, but, on the whole, trade seems to be slowly turning United States. In the tonnage list no account is taken of ships ere for orders only. If this tonnage were reckoned, the aggre- be more than double what it now comes to, and the American at this port would swell to fully ten times its present size.

n goods are winning their way here in the hardware line. Car- early all of American manufacture, and household furniture also ming into use.

lespeople in the United States are continually sending letters here rmation which can not be given from this office without turning eral information bureau. Many of them seem to hold the opin- Government has put consuls at foreign posts, not as the servants rnment, but as directly the servants and special property of each merican manufacturer and trader. While it is impossible to re- is, of course, a pleasure to answer polite requests to furnish special that can not be otherwise obtained. But many of these letters orders to study certain business markets and supply "directory" This class of letters can not be answered. It seems to me d be of great advantage to our advertisers in these West Indian they were to name plainly their prices and terms; all English

firms dealing here do so, and our people are at a disadvan
their would-be purchasers in doubt until, immediate demand
tive, the trade naturally falls to the English market. The
send for information; it must come to them, and in time.

Table showing the difference in duties as imposed by the trade acts of Bar
1891, respectively.

Articles.	Act of 1889.	
Bread	6*d*. per 100 pounds	3*d*. per
Cheese	7*s*. 6*d*. per 100 pounds	3*s*. 9*d*.
Corn meal	6*d*. per 196 pounds	11¼*d*. p
Flour	4*s*. 2*d*. per 196 pounds	3*s*. 1½*d*.
Lard and compounds	4*s*. 2*d*. per 100 pounds	2*s*. 1*d*.
Beef, salted and pickled	5*s*. per 100 pounds	3*s*. 9*d*.
Pork	do	I
Bacon	do	I
Mules:		
Valued at £12 10*s*. and over	£1 10*s*. each	15*s*. eac
Valued under £12 10*s*	£1 each	10*s*. eac
Oil meal	2½*d*. per 100 pounds	1⅞*d*. pe
Pitch pine	5*s*. per 1,000 superficial feet	3*s*. 9*d*.
Staves	6*s*. per 1,200 pieces	3*s*. per
Animals for breeding	8 per cent ad valorem	Free.
Beef, including tongues (smoked and dried)	do	I
Bottles, glass	do	I
Bran	do	I
Bridges	do	I
Candles	do	I
Clocks	do	I
Crucibles	do	I
Fish on ice	do	I
Fishing apparatus	do	I
Hulls	do	I
India-rubber goods	do	I
Implements for agriculture	do	I
Lamps	do	I
Manure	do	I
Marble	do	I
Medicinal extracts	do	I
Paper of all kinds for printing, wrapping, etc	do	I
Photographic apparatus	do	I
Printers' ink	do	I
Printers' presses	do	I
Quicksilver	do	I
Sewing machines	do	I
Starch of Indian corn	do	I
Steam boilers	do	I
Sulphur	do	I
Trees for cultivation	do	I
Varnish	do	I
Watches	do	I
Water pipes	do	I
Wire for fences	do	I

the arrivals and departures of vessels at Barbados during 1890 and 1891.

ENTERED.

Year.	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
....	357	458,755	1,103	161,428	1,460	620,183
....	314	442,371	1,024	146,082	1,338	588,453
....	43	16,384	79	15,346	122	31,730

CLEARED.

Year.	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
....	360	463,384	1,109	162,695	1,469	626,079
....	314	442,371	1,025	147,481	1,339	589,852
....	46	21,013	84	15,114	130	36,227

rivals and departures of American vessels at Barbados during 1890 and 1891.

ENTERED.

Year.	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
....	7	10,826	92	29,130	99	39,956
....	2	4,836	96	31,449	98	36,285
....	5	5,990	....	....	1	3,671
....	....	....	4	2,319	....	....

CLEARED.

Year.	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
....	7	10,826	92	29,130	99	39,956
....	2	4,836	98	32,234	100	47,070
....	5	5,990	....	....	....	....
....	....	....	6	3,104	1	7,114

e number and tonnage of steamers of each nationality entered and cleared at Barbados during 1891.

ENTERED.

ationality.	With cargoes.		In ballast.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
....	290	409,621	21	27,285	311	436,906
....	1	1,902	1	2,934	2	4,836
....	1	629	....	....	1	629
....	292	412,152	22	30,219	314	442,371

CLEARED.

ationality.	With cargoes.		In ballast.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
....	271	386,442	40	50,464	311	436,906
....	1	2,934	1	1,902	2	4,836
....	1	629	....	....	1	629
....	273	390,005	41	52,366	314	442,371

Table showing the number and tonnage of sailing vessels of each nationali
cleared at Barbados during 1891.

ENTERED.

Nationality.	With cargoes.		In ballast.	
	No.	Tons.	No.	Tons.
British	768	67,712	68	19,176
American	83	25,226	13	6,223
Norwegian	27	11,699	8	5,182
Swedish	3	717	....	....
Dutch	33	1,671	1	60
French	8	2,560	1	470
Venezuelan	5	525	2	63
German	3	2,170	1	453
Danish	3	678	....	....
Italian	1	449	1	375
Austrian	....	....	1	683
Total	934	113,397	90	32,685

CLEARED.

Nationality.	With cargoes.		In ballast.	
	No.	Tons.	No.	Tons.
British	736	67,902	91	18,899
American	61	20,110	37	12,124
Norwegian	13	7,537	23	9,695
Swedish	....	....	3	717
Dutch	35	1,767	....	....
French	4	2,144	5	886
Venezuelan	2	117	4	257
German	1	453	4	2,688
Danish	....	....	3	678
Italian	2	824	....	....
Austrian	1	683	....	....
Total	855	101,537	170	45,944

Table showing the general commerce of Barbados during 1890 and

Year.	Trade with the United States.		Total
	Imports.	Exports.	Imports.
1890	$2,047,020.10	$3,580,347.42	$5,729,873.58
1891	1,834,025.02	2,253,755.16	5,124,561.68
Decrease	212,995.08	1,326,592.26	605,311.90

Table showing the amount of each article exported to the United States du

Articles.	Amount.	Articles.
Drugs	$16.20	Sugar
Empty packages	97.49	Tamarinds
Hides	218.94	Total
Molasses	575,647.71	
Nutmegs	47.43	

g the revenue and expenditure of the island of Barbados for 1890 and 1891.

Year.	Revenue.			Expenditure.
	Customs.	Incidental.	Total.	
	$558,780.62	$334,880.08	$893,660.70	$871,851.33
	478,943.60	307,804.52	786,748.12	848,644.72
	79,837.02	27,075.56	106,912.58	23,205.61

sus taken in 1891 gave a total of 190,000 inhabitants, or an in- ,000 since 1881. Of this total 16,000 were whites and the re- ored.

nber of baptisms, marriages, and deaths in 1891 was as follows: ,769; marriages, 986; deaths, 4,794.

nber of persons committed to prison during 1891 was as follows:

Description.	Male.	Female.
	2,041	1,756
	78	37
	2,119	1,793

lth of the island during 1891 was good.

E. A. DIMMICK,
Consul.

STATES CONSULATE,
Barbados, August 21, 1892.

NEW CURRENCY OF AUSTRIA-HUNGARY.

ANSMITTED BY VICE-CONSUL-GENERAL MAASS, OF VIENNA.

[Translation.]

gust 2, 1892, fixing the "Krohnenwährung" (*currency of the crown coin*).

. In place of the present *oesterreichische Währung* (Austrian currency) there ld currency, the unit of which is the crown. The crown is divided into 100

ne standard weight for the coin is the kilogram, with its decimal divisions, as it ulgated by the law of July 23, 1871, as the general weight.

he gold coins of the country are minted in the alloy of 9 of gold and 1 of kilogram of minting gold will make 2,952 crowns; hence 1 kilogram of fine ll make 3,280 crowns.

f gold coins of the country there are coined (1) 20-crown pieces and (2) 10-crown

ilogram of minting gold will be coined 147.6 20-crown pieces and 295.2 10- hence 1 kilogram of fine gold will make 164 20-crown pieces and 328 10- A 20-crown piece will therefore weigh 6.775067 grams and contain 6.09756 old; a 10-crown piece will weigh 3.3875338 grams and contain 3.04878 grams

ART. 5. These gold coins will have the bust of Francis Joseph on the fa perial eagle, with the figure 10 or 20, respectively, and the year of their bein reverse side. The inscription, in proper abbreviation, will be: "Franciscus G. Imperator Austriæ, Rex Bohemiæ, Galiciæ, Illyriæ, etc., et Apostolicus R

The edge will be smooth, and that of the 20-crown pieces will contain in su words "Viribus unitis." The edge of the 10-crown pieces will have sunken

The inner border consists on both sides of a flat bar, the inner circuit of circle of beads (bead close to bead). The 20-crown gold coins will be 21 diameter, and the 10-crown pieces will be 19 millimeters in diameter.

ART. 6. The process of coinage shall be such as to insure the perfect e coins in regard to standard and weight. In so far as there can not be obtain actness of the single coin, the utmost deviation, more or less, which is per exceed 0.002 of the raw weight and 0.001 of the standard weight.

ART. 7. The weight of the 20-crown piece is fixed at 6.74 grams, and crown piece at 3.37 grams.

Gold coins which by common circulation have not been lessened below t be a legal tender at all the offices of the fiscus and the State and in priv However, gold coins which, in consequence of long circulation and wearing much in weight as not to reach the standard weight will be withdrawn from the State for the purpose of remelting. For this purpose such worn-off gold taken at their full nominal value by all the pay offices of the State and by c offices and are, by way of the imperial royal central pay office of the State a delivered to the imperial royal chief mint office at Vienna. Coins which hav in their weight otherwise than by common circulation will be taken by the pa State and other public offices, after deducting the loss of their intrinsic value, of being recoined in the above manner.

ART. 8. The stamping of the gold coins of the country is done on accour Twenty-crown pieces will also be coined on account of private persons, that i perial royal mint office is not employed by the State. The stamping dues f private account will be fixed by ordinance, but the maximum for 20-crown p exceed 0.3 per cent of the value.

ART. 9. Besides the above-named gold coins of the country, Austrian hitherto, be stamped as commercial coins, *i. e.*, $81\frac{189}{355}$ pieces out of one " (0.280668 kilogram) of fine gold with a standard of 23 carats (0.986½). Th 8 and 4 florins, introduced by the law of March 9, 1870, will not be coined any

ART. 10. The silver coins of the country at 2, 1, and one-fourth of *reichischer Währung*), as stamped according to the imperial patent of Septemb for the present remain in circulation. Silver coins of the *oesterreichische* trian currency) of the country are no more to be stamped, except of those qua which are already in the possession of the financial administration or have be the latter for coining purposes. As long as the said silver coins of the countr drawn from circulation they are to be taken by the pay offices of the State ar pay offices and by private persons in payment for all payments that are legally the crown currency in such a manner that they will be calculated as follow piece=4 kronen (crowns); 1-florin piece=2 kronen; quarter-florin piece=5

ART. 11. Besides the gold coins of the country, there will next be coined coins of the crown currency: (1) Silver coins, 1-crown pieces; (2) nickel coin pieces and (*b*) 10-heller pieces; (3) bronze coins, (*a*) 2-heller pieces and (*b*)

ART. 12. The 1-crown pieces will be stamped from an alloy of 0.835 of s of copper. Out of 1 kilogram of standard silver there will be coined two hu pieces; hence the 1-crown pieces will have the weight of 5 grams. At the crown pieces must be given the standard weight and the standard alloy. In s exactness can not be obtained with single pieces, a deviation, more or less, is p ceed three one-thousandths of the standard alloy and ten one-thousandths of weight.

. The 1-crown pieces will have on the face the bust of Francis Joseph and on side the imperial crown and the year of the coining. The legend, in proper , is to be: "Franciscus Josephus I. D. G. Imperator Austriæ, Rex Bohemiæ, riæ, etc., et Apostolicus Rex Hungariæ." The edge of the 1-crown piece will nd contain in sunken letters the motto "Viribus unitis." The diameter of the ce will be 23 millimeters.

. The coining of the 1-crown pieces will be performed only on account of the re are to be coined 1-crown pieces to the value of 140,000,000 crowns. By way e the terms will be fixed at which the stamping and issuing of the 1-crown pieces ce.

The nickel coins will be stamped out of pure nickel. Out of 1 kilogram of will be stamped two hundred and fifty 20-heller pieces or three hundred and 10-heller pieces. The face of the nickel coin will have the imperial eagle; the will show the value of the coin and the year of the coinage. The edge will be e diameter of the 20-heller pieces will be 21 millimeters and that of the 10-heller e 19 millimeters.

The stamping of nickel coins will take place only on account of the State. are to be coined up to the value of 42,000,000 crowns. being issued the silver coins of 20, 10, and 5 kreutzers will be withdrawn from

of ordinance the terms of coinage and issue of these coins will be fixed and also withdrawal from circulation of the small silver coins of *oesterreichische Währung* urrency).

The bronze coins will be stamped out of an alloy of ninety-five parts of copper, tin, and one part of zinc. There are to be coined out of 1 kilogram of that ee hundred pieces at 2 hellers and (2) six hundred pieces at 1 heller. The face e coins bears the imperial eagle; the reverse side contains the value of the coin of its coinage. The edge will be smooth. The diameter of these coins is fixed millimeters, respectively.

The coining of the bronze coins takes place only on account of the State, and her not exceed the value of 18,200,000 crowns. They must be issued only on val of the copper coins at 4 kreutzers, 1 kreutzer, and half a kreutzer of *oester- 'ährung*.

f ordinance the terms of the coinage and issue of these coins will be fixed, and the withdrawal from circulation the copper coins of *oesterreichische Währung*.

. The 1-crown pieces, and also the nickel and bronze coins, will be taken in cording to their nominal value by all the pay offices of the State and by the pay offices, that is to say, the 1-crown pieces to an unlimited amount, the nickel coins up to the amount of 10 crowns. Besides, they are to be taken by way of rticles 4 and 10) and by all the pay offices acting as pay offices of exchange on by way of ordinance. In regard to private transactions, it is decreed that nobody take in payment 1-crown pieces to a larger amount than 50 crowns, nickel coins mount than 10 crowns, and bronze coins to a larger amount than 1 crown.

. Article 19 does not include coins that are perforated or have become lessened in rwise than by common circulation, nor does it apply to counterfeit coins. If oins are presented to the pay offices of the State or other public pay offices, they o be withdrawn from circulation, without any indemnification whatever, and are ed to the imperial royal chief mint office at Vienna. Coins which are perforated ome lessened in weight otherwise than by common circulation, and which are the pay offices of the State or other public pay offices, are to be marked so as to from legal circulation. Silver, nickel, and bronze coins which, by reason of cir-

culation and wear, have lost considerable in weight or discernibility will be tak
or for exchange by all public pay offices, but are to be withdrawn from circulat
of the State, for the purpose of recoinage.

ART. 21. The silver and copper coins of *oesterreichische Währung* stamped
with the imperial patent of September 19, 1857; imperial ordinance of Oct
law of July 1, 1868; law of March 30, 1872; law of April 16, 1878; law o
1881; law of March 10, 1885; and the law of June 10, 1891, are to remain
until their calling in will be decreed. This decree will take place in the wa
and in connection with the carrying out of this law. There will also be dec
ordinance the last term for the redeeming of the coins called in from circulat
offices of the State. With the lapse of that term all obligations of the State t
coins will cease. Until then there are to be calculated and to be taken in pa
ing to article 10 of the law of July 1, 1868, the 20-kreutzer pieces at 40 hellers,
pieces at 20 hellers, the 5-kreutzer pieces at 10 hellers, the copper coins of
hellers, the 1-kreutzer pieces at 2 hellers, and half-kreutzer pieces at 1 heller.

ART. 22. The so-called "Levantiner thaler," with the picture of Empress
and the date of the year 1870, will still be coined, in the same manner as form
mercial coin, *i. e.*, 12 thalers out of 1 Vienna mark (0.280668 kilogram) fi
ounces, 6-grain (0.8333) standard.

ART. 23. The paper money in *oesterreichische Währung* is to be taken
offices of the State and the other public pay offices, and also by private perso
for all payments which are legally to be made in the crown currency until tha
be called in from circulation; in such payments each florin, *oesterreichischer W*
nominal value of the paper money is to be calculated equal to 2 crowns.

ART. 24. The general introducing of the obligatory calculating in the c
together with the settling of the relations of the general circulation of coins
tions for the new currency (article 1) in regard to legal relations, as also the
specting the silver coins of the country at 2 florins, 1 florin, and one-fourth of
reichischer Währung, are to remain in circulation according to the present lav
the ordinances about the redemption of the State bank notes, the regulations on
of the paper-money circulation, and the ordinances on the reassumption of
will be fixed by special laws. However, all payments to be made in
Währung, be it in hard cash or not, may, from the time when the present l
force, be made, according to the choice of the debtor, in gold coins of the cro
the country in such a manner that the 20-crown piece will be calculated at t
florins, *oesterreichischer Währung*, and the 10-crown piece at the value of
reichischer Währung. The same may be applied to the 1-crown pieces and
bronze coins of the crown currency in so far as their being a legal tender is
19 of this law; they are to be calculated in such a manner that the 1-crown p
at 50 kreutzers, the 20-heller piece at 10 kreutzers, the 10-heller piece at 5 k
heller piece at 1 kreutzer, and the 1-heller piece at half a kreutzer, *oesterreichis*

ART. 25. This law will come into force at the same time with the law by
istry of the kingdoms and countries represented in the Reichsrath will be
conclude a coin and currency convention with the ministry of the countries of
Crown.

Law of August 2, 1892, by which the ministry of the kingdoms and countries the Reichsrath is empowered to conclude a coin and currency convention wi of the countries of the Hungarian Crown.

The ministry of the kingdoms and countries represented in the Reichsrath
by the law of December 21, 1867, concerning the affairs common to all the c
Austrian Monarchy and the manner of their being treated, to conclude with
the countries of the Hungarian Crown the following coin and currency conver

1. In both domains of the Monarchy there will be, in place of the present *öster-*
Währung (Austrian currency), the gold currency, the unit of which is the crown.
divided into 100 hellers.
The standard weight for the coin is the kilogram, with its decimal divisions.
One kilogram of standard mint gold, composed of nine-tenths of gold and one-
per, will make 2,952 crowns, hence 1 kilogram of fine gold will make 3,280

Of gold coins of the country there will be stamped (1) 20-crown pieces and (2)
eces. Out of 1 kilogram of standard mint gold there will be coined 147.6
eces or 295.2 10-crown pieces; hence 1 kilogram of fine gold will make 164
eces or 328 10-crown pieces. Therefore, the 20-crown piece will have a raw
75067 grams and a fine weight of 6.09756 grams, and the 10-crown piece will
eight of 3.3875338 grams and a fine weight of 3.04878 grams. The diameter
the 20-crown pieces, 21 millimeters; of the 10-crown pieces, 19 millimeters.
iption of these coins will have to contain the legible statement of the value—
wns—and the year of the coinage. In other ways these gold coins, and also
ns of the crown currency, will have to be as concordant as possible. On this the
l and the royal Hungarian ministers will come to an agreement.
ess of the coinage of these gold coins shall insure the perfect exactness of the
ing their standard and weight. In so far as an absolute exactness can not be
h single pieces, the utmost deviation, more or less, which is permitted must
ne one-thousandth of the standard fineness or two one-thousandths of the raw

The gold coins of the crown currency of the country will be stamped by both
at their mints and on their own account. The stamping is unlimited as to
Besides, both the governments will allow 20-crown pieces to be also coined on
f private persons, in so far as the respective mints are not employed with coining
nt of the State. For the coining on the account of private persons no higher
ng must be deducted than 0.3 per cent of the value of the 20-crown pieces. The
due for coining within the maximum due will be made public by way of ordi-
n agreement of both the ministers of finance, and the other terms for coining
count will likewise be settled by way of ordinance on uniform principles to be

The gold coins issued in both the domains according to the preceding regula-
have not lost by common circulation so as not to reach the standard weight men-
, are to be taken as of full weight in all payments to the pay offices of the State
blic pay offices of both the domains. The *Passirgewicht* (minimum weight for
he 20-crown pieces is 6.74 grams; that of the 10-crown pieces is 3.37 grams.
hich by reason of long circulation and wearing off have lost so much in weight
to reach the *Passirgewicht*, although they are to be taken by the pay offices of
l other public pay offices of both the domains at their nominal value and as if
t, are not to be put in circulation again, but are to be delivered to the central
the respective State that takes them from circulation. The coins stamped by
e State will then be delivered by the respective central pay office of the State
or recoining. The coins taken from circulation and which have been coined by
ate will, however, be delivered for recoinage to the financial department of the
gainst the restitution of the same number of pieces fit for circulation. On the
of this regulation an agreement will be concluded between both the ministers
Coins which have been lessened in weight otherwise than by circulation will,
ted to the pay offices of the State or other public offices of both the domains, be
irculation on payment of the value of the standard and without regard to their
e, and will, in the same manner as above, be delivered for recoinage.

ART. 7. Neither of the governments will have other than the above-nam the crown currency of the country stamped at their mints. The gold coins a introduced by the law of March 9, 1870, or article 12 of the law of 1869 wi any more in either of both the domains. Each party to the convention is a ducats still coined according to article 20 of the law of September 19, 185 the law of 1868.

ART. 8. Besides the gold coins of the country, there will next be stamp coins of the crown currency: (1) Silver coins, 1-crown pieces; (2) nickel heller pieces and (*b*) 10-heller pieces; (3) bronze coins, (*a*) 20-heller pieces pieces. The 1-crown pieces will be stamped out of an alloy of 0.835 of sil copper. One kilogram of standard silver will make two hundred 1-crown pi 1-crown piece will weigh 5 grams. In stamping them the standard weig fineness must be observed. In so far as an absolute exactness can not b single pieces, a deviation, more or less, is allowed, which must not exceed sandths of the standard fineness and ten one-thousandths of the weight. Th 1-crown piece will be 23 millimeters. The nickel coins will be stamped out Out of 1 kilogram of pure nickel will be stamped 250 20-heller pieces or 333 The diameter of the 20-heller pieces will be 21 millimeters, that of the 10- millimeters. The bronze coins will be stamped out of an alloy of 95 parts of of tin, and 1 part of zinc. Out of 1 kilogram of that alloy are to be ma pieces or 600 1-heller pieces. The diameter of the 2-heller piece will be 19 of the 1-heller piece will be 17 millimeters.

ART. 9. The stamping of the 1-crown pieces, the nickel coins, and the b take place in both the domains solely on and for account of the respective 1-crown pieces there will in both the domains next be stamped 200,000,00 The time when the stamping and issuing will take place will be agreed on b isters of finance and will be fixed by way of ordinance. Nickel coins w domains next be stamped to the amount of 60,000,000 crowns in all. The c of them, after both ministers have come to an agreement, will take place at t by way of ordinance; and on their being issued the silver coins at 20, 10, *oesterreichischer Währung*, will be taken from circulation.

Bronze coins will in both the domains next be stamped to the amoun crowns in all. The coinage and issue, after both the ministers of finance h agreement, will take place at terms to be fixed by way of ordinance; and o sued the copper coins at 4 kreutzers, 1 kreutzer, and half a kreutzer are to b culation.

ART. 10. The amount for 1-crown pieces, nickel coins, and bronze coins article 9, are to be divided between the kingdoms and countries represente rath and the countries of the Hungarian Crown at the ratio of 70 to 30. At t expenses for redeeming the coins of the *oesterreichische Währung* of any ki be divided between both the domains.

ART. 11. The governments engage to take in payment at all pay offices the other public pay offices the 1-crown pieces, nickel coins, and bronze coins s domain at their nominal value, that is to say, the 1-crown pieces to an unlim nickel and bronze coins up to the amount of 10 crowns. Besides, the co coinages will be taken to an unlimited amount at the pay offices acting as exc of both domains on terms to be agreed upon and to be published by way of regard to private transactions, it is fixed that no person is obliged to take i than 50 crowns in 1-crown pieces, more than 10 crowns in nickel coins, a crown in bronze coins of the crown currency issued by both the domains. T are not to be applied to coins that are perforated or are lessened in weight o common circulation and to counterfeit coins. If counterfeit coins of any ki

ices of the State or to other public pay offices, they are at once, without any
whatever, to be taken from circulation and to be sent to the mint office of that
ich the seizure has been made. If the counterfeit coin concerns the coinage of
ain, the respective mint office is to inform the mint office of the other domain.
r of the two stamps which are perforated or have been lessened in weight other-
common circulation, when presented to the pay offices of the State or other public
either domain, are to be marked so as to exclude them from legal circulation.
n of article 6 concerning the gold coins of the country is not affected hereby.
n pieces, nickel coins, and bronze coins which have considerably lost in weight
ity will still be taken in payment or for exchange at the pay office of the State
blic pay offices of both the domains; but they are not to be put in circulation
to be delivered to the central pay office of the State of that domain in which
n received. Coins that have been stamped by the domain itself will then be
the respective central pay office of the State to the mint office for the purpose of
Coins thus taken from circulation that have been stamped by the other domain
, on the restitution of the nominal value, by the financial department of the
for the purpose of recoinage. On the carrying out of this regulation a conven-
oncluded between both the ministers of finance.

The silver coins of the country of 2 florins, 1 florin, and one-fourth of 1
ed by virtue of the imperial patent of September 19, 1857, and the 1-florin
terreichische Währung stamped by virtue of article 7 of the law of 1868 or
the law of 1869 will for the present have to remain in lawful circulation in both
The governments of both the domains engage themselves not to coin any
ver coins of the country in *oesterreichische Währung*, except out of such quan-
that are in possession of the financial departments of both the domains or that
been acquired by them for the purpose of coinage. The determining of these
ies will be settled by officials to be delegated by both the ministries of finance.
n agreement will always have to be come to between both the ministries of
e procuring of silver for the purpose of coinage. So long as the designated
the country have not been withdrawn from circulation they are to be taken by
of the State and other public pay offices of both domains and by private per-
these domains in all payments which legally are to be made in the crown cur-
a manner that there be calculated the 2-florin piece equal to 4 crowns, the
equal to 2 crowns, and the one-fourth of 1 florin equal to 50 hellers.

The small silver and copper coins of *oesterreichische Währung* stamped by
imperial patent of September 19, 1857; the imperial ordinance of October 21,
of July 1, 1868; the law of March 30, 1872; the law of April 16, 1878; the
ary 26, 1881; the law of March 10, 1885; and the law of June 10, 1891; and
irtue of the Hungarian articles of laws of 1868, 1869, 1870, 1878, 1879, 1881,
91—are to remain in circulation in both the domains until their redemption will
This ordinance will ensue by way of enactment in connection with the carry-
s law after an agreement to be come to by both governments. Until then these
e taken in payment at the value fixed by law for these small coins, that is to
reutzer pieces at 40 hellers, the 10-kreutzer pieces at 20 hellers, the 5-kreutzer
hellers, the copper coins of 4 kreutzers at 8 hellers, the 1-kreutzer pieces at 2
he half-kreutzer pieces at 1 heller.

To the government of the kingdoms and countries represented in the Reichsrath
right still to coin the so-called "Levantiner thalers" in the sense of article
erial patent of September 19, 1857; they, however, in the sense of section 11
l patent of April 27, 1858, are not a legal tender.

The coinage of both domains is mutually examined by the general assaying
er domain. To carry out this regulation an agreement will be concluded be-
e ministers of finance. There will be sold at the price of the prime cost, which

will be fixed by way of ordinance after an agreement between the two mini
weights of the standard weight and others of the *Passirgewicht* of the gold co
try, which weights are adjusted and stamped under public control.

ART. 16. At the end of every month, either of the two governments i
other government, by way of a statement, of the new coins stamped during t
month and of the withdrawal and melting of old coins, with a statement
coins, their standard, and weight. In like manner both the ministers of
form each other of all the laws and ordinances that will be made for regula
in the sense of the present convention.

ART. 17. The paper currency, *oesterreichischer Währung*, until being
circulation, will have to be taken by all the pay offices of the State and c
offices and private persons in payment for all payments that are to be made in
currency, that is to say, in such a manner that each florin of *oesterreichisc*
the nominal value of the respective paper currency will be calculated equal t

ART. 18. The general introduction of the obligatory calculating in the cr
connection with the regulation of the general traffic of specie, also the ordin
the silver coins of *oesterreichische Währung* at 2 florins, 1 florin, and one-f
remaining in circulation according to the present convention, will ensue by
latures of the two domains on principles to be agreed on. The two gover
come to an agreement in regard to the regulations of how to apply the cr
legal procedures before the respective bills have been brought before the hou
beginning from the time when the present convention shall be valid in both
the payments legally to be made in *oesterreichische Währung*, be it in s
specie, by the pay offices of the State and the other public pay offices and i
course, may in both domains be made, according to the choice of the debtor,
the crown currency of the country of either coinage in such a manner th
piece be calculated at the value of 10 florins and the 10-crown piece at 5 f
reichische Währung. The same applies to the 1-crown pieces and to the ni
coins of the crown currency, according to article 11 of this convention, in suc
the 1-crown piece will be calculated at the value of 50 kreutzers, the 20-he
kreutzers, the 10-heller piece at 5 kreutzers, the 5-heller piece at 1 kreutzer,
piece at one-half of 1 kreutzer in *oesterrichische Währung*.

ART. 19. At the proper time the governments of both the domains will, on m
place bills for the redemption of the *Staatsnoten* (paper money of the State)
legislatures. The expenses for redeeming these *Staatsnoten*, which form a c
debt, will be borne in common only up to the amount of 312,000,000 florin
ische Währung, in such a manner that kingdoms and countries of the Reich
tribute 70 per cent and the countries of the Hungarian Crown will contribu
In regard to the process of redeeming the *Staatsnoten*, there has already be
that it shall be effected by both the governments by first redeeming the *Staat*
and replace them by other lawful currency, with the exclusion, however, of *St*
Staatsnoten withdrawn from circulation are to be destroyed, and the amount
florins is to be deducted from the amount of the *Staatsnoten* in circulation.
of the paper-money circulation, and also about the reassumption of cash pay
will be come to by the governments of both the dominions at the proper time

ART. 20. This convention will be in force until the end of the year
If one year before the termination of the present convention notice should b
of the contracting parties, the coins which have been stamped according to
will be still admitted for circulation in both the domains for at least two y
governments engage to uphold within that time the crown currency of the con
ard and coinage system. At the end of that time each conventional party is
the 1-crown pieces, nickel and bronze coins of the crown currency of
that are within the other domain against the legal coins of the country. The

ases after the lapse of another year. If there be no notice given by either of al parties one year before the termination of the convention, the convention force for the next ten years. In that case the above stipulations for the termi-rolonged conventional period will come into force.

Immediately after the coming into force of this convention both the governments heir negotiations in order to come to an agreement on the legal enactments on roduction of the obligatory calculating in the crown currency, in connection al intercourse of coins, and furthermore on the settlement of the paper currency, pect to the taking up of the payment in cash.

This convention will come into legal force on the day of its being published, o be agreed on by both the governments.

st 2, 1892, concerning the discharging in gold coins of the crown currency of the country of engagements payable in gold florins.

. Engagements made to be paid in actual Austrian or Hungarian gold florins ade in gold coins of the crown currency of the country of either coinage, ac-choice of the debtor, and according to the rate of the value as fixed by article nt law, and according to the law by which the ministry of the kingdoms and sented in the Reichsrath has been empowered to conclude a coinage and cur-on with the ministry of the countries of the Hungarian Crown, and according ng the crown currency.

such payments each 42 Austrian or Hungarian gold florins are to be calculated old coins of the crown currency of the country.

hese regulations are, too, especially to be applied to payments for customs duties. his law comes into force at once with the law empowering the ministry of the countries represented in the Reichsrath to conclude a coinage and currency h the ministry of the countries of the Hungarian Crown.

/ith the performance of this law the ministers of finance, of justice, and of com-missioned.

st 2, 1892, concerning an amendment to article 87 of the statutes of the Austro-Hungarian Bank.

icle 87 of the statutes of the Austro-Hungarian Bank, fixed by the law of June renewed by the law of May 21, 1887, for prolonging the privilege from January December 31, 1897, the following addition is to be made:

is bound to take at any time, at their chief institutions at Vienna and Buda-Pesth, ins at their nominal value and gold ingots according to the lawful standard of rency in exchange for bank notes, if such be demanded. The bank is entitled old ingots examined and fined by technicists designated by the bank, at the ex-eller, and also to deduct the dues for coining, as regulated and published by the

inister of finance is commissioned with the execution of this law, which comes ne same time with the law by which the ministry of the kingdoms and countries the Reichsrath is empowered to conclude a coinage and currency convention try of the countries of the Hungarian Crown.

st 2, 1892, by which the minister of finance is empowered to take up a loan on he State in effective gold for the coinage of the gold coins of the crown currency ry, and by which regulations are made in regard to the newly coined gold coins ry, and the controlling of the coinage.

1. The minister of finance is empowered to take up a loan by disposing of the *ionen* (bonds bearing interest) bearing 4 per cent interest in gold, issued accord-of March 18, 1876, to that total amount which is requisite to redeem in effective nt of 183,456,000 Austrian gold florins.

ART. 2. The amount of gold received is at once to be coined into gold co
currency of the country.

ART. 3. These gold coins are to be placed in the imperial royal State cent
on order and for account of the financial administration, in the Austro-Hungar
to be kept separately.

ART. 4. The gold coins thus preserved according to the preceding article
of only by way of legislation.

ART. 5. The Staatsschulden-Control-Commission (board to control the
appointed to watch that the regulations of articles 3 and 4 of this law be obs
purpose the control commission has the counter control of the gold coins thus
commission has, as often as it thinks proper, but at least once a year, to make
to the Reichsrath on the exercise of its control.

ART. 6. The minister of finance is directed in time to bring in a bill on the
floating debt, limited to the maximum amount of 100,000 florins in *oesterreich*
in *Partial-Hypothekar-Anweisungen* (partial mortgage assignments), or the *S*
notes of the State) in circulation representing them.

ART. 7. The minister of finance is commissioned with the execution of
will come into force on the day of its being published.

Law of August 2, 1892, concerning the conversion of the obligations of the
cent income notes, of the 5 per cent State railway bonds of the Vorarlber
of the 4¾ per cent State railway bonds of the Crown Prince Rudolph R

ARTICLE 1. For the purpose of repaying (1) the obligations of the bonde
per cent, free of taxes, of the kingdoms and countries represented in the Reic
virtue of the law of April 11, 1881; (2) the railroad State bonds dated Dece
issued by virtue of the law of April 8, 1884, not yet drawn, and mortgaged
the railroad above the lines of the Vorarlberg Railroad, bearing an annual i
cent in *oesterreichische Währung* in silver and redeemable at the latest in
(3) the railroad State bonds dated July 12, 1888, issued by virtue of the law o
and not yet drawn, mortgaged in the book of the railroad of the lines of the
Rudolph Railway, bearing an annual interest of 4¾ per cent in *oesterreich*
in silver and redeemable at the latest in the year of 1960—the Government i
take up a loan at an interest of at most 4 per cent, free of taxes, which, in re
gations enumerated in 1, is to be in the form of a public debt bearing inter
doms and countries represented in the Reichsrath; and in regard to the bo
in 2 and 3 by means of the issue of State railroad obligations with the prese
the same terms for repayment. The loan is to be taken up so that there will
saving to the fiscus as compared to the present annuity. Hence the categori
tioned are to be recalled, either all of them at once or by lots, for repayment
such a manner that, with the expiration of the last term to be fixed by the mi
the bonds thus called in will cease to bear any interest.

ART. 2. The minister of finance is commissioned with the execution of
will come into force on the day of its publication.

Publication of the imperial royal president of the ministry of August 11, 1
proclaimed the convention of coinage and currency concluded between
the kingdoms and countries represented in the Reichsrath and the countr
garian Crown.

In execution of the law of August 2, 1892, the ministry of kingdoms an
resented in the Reichsrath has concluded with the ministry of the Hunga
coinage and currency convention as stipulated by law. According to articl
law, both the governments have appointed the 11th day of August, 1892, as
publication and of coming into lawful force of this convention.

the ministry of finance of August 11, 1892, for the executing of article 8
of August 2, 1892, by which the crown currency is regulated, and for the
ut of the law of August 2, 1892, concerning an addition to article 87 of the
he Austro-Hungarian Bank.

on of article 5 of the law of August 2, 1892, by which the ministry of the
countries represented in the Reichsrath is empowered to conclude a coinage
onvention with the ministry of the countries of the Hungarian Crown, and in
the royal Hungarian ministry of finance, and in the carrying out of article
August 2, 1892, the stamping dues for the stamping of 20-crown pieces on
ate persons is for the present fixed as follows:
l royal chief mint office at Vienna is to collect a stamping due of 6 crowns
of fine gold in all cases of stamping 20-crown pieces on account of private
he exception of stamping for account of the Austro-Hungarian Bank. For
account of the Austro-Hungarian Bank the stamping due to be collected by
yal chief mint office is fixed at 4 crowns for each kilogram of fine gold.
the Austro-Hungarian Bank, in the sense of the law of August 2, 1892, is
n gold bars at any time against bank notes at the rate of 3,276 crowns for 1
e gold.
e when the imperial royal chief mint office at Vienna will begin the coining
eces on account of private persons and the other conditions on which the
e effected will be separately published.
dinance will be in force on the day of its being published.

he ministry of finance of August 8, 1892, concerning the calling in of the
coins stamped according to the "Conventions-Münzfuss" (convention stand-
e).

l royal ministry of finance, with reference to sections 11 and 12 of the imperial
27, 1858, calls in (fixing December 31, 1892, as the last term) the inland con-
oins enumerated in the said imperial patent at the following values in silver
eichische Währung: (1) The 2-florin piece, or scudo, at 2.10 florins; (2) the
r one-half scudo, at 1.05 florins; (3) the one-third-florin piece, or zwanziger
of later stamping, nine-tenths fine, and the lira austriaca, at 35 kreutzers;
d-florin piece, or zwanziger, of older stamping, 9⅓ ounces fine, at 34 kreutzers;
h-florin piece, or 10-kreutzer piece, and the half lira, at 17 kreutzers; (6) the
in piece, or 5-kreutzer piece, and the one-quarter lira, at 8.5 kreutzers; (7)
th-florin piece, or 3-kreutzer piece, at 5 kreutzers; (8) the kronenthaler (crown
florins; (9) the one-half kronenthaler, at 1.12 florins; (10) the one-quarter
t 55 kreutzers.
e coins are to be taken at the above values in all payments or in exchange at
yal pay offices and at other public pay offices, but they must not be paid out
he lapse of that term they will no longer be accepted by the imperial royal pay
r public pay offices, either at their nominal values or at their intrinsic values,
demption of any kind take place after that time at the imperial royal offices of
redemption.
vill also apply to the convention coin of 6 kreutzers called in by imperial ordi-
t 29, 1870, but which are still accepted at their silver value; beginning from
mber, 1892, they will likewise be excluded from redemption.
brought to mind that the so-called "Levantiner thaler," which is the conven-
he year 1780 with the picture of the Empress Maria Theresa, which have
legal value in accordance with section 11 of the above imperial patent, must,
be taken in payment at the imperial royal pay offices and other public pay
st likewise remain excluded from redemption.

TAHITI.

REPORT BY CONSUL DOTY.

GEOGRAPHICAL FEATURES.

Tahiti, the principal island of the French possessions in situated in 17° 29′ south latitude and 149° 36′ west longitude of two peninsulas, namely, Tahiti and Tairaboo, the entire le miles and circumference 120 miles.

HISTORY.

The inhabitants of these islands belong to the Malay rac ingenious, and hospitable, but volatile and sensual. Their ki were believed to be descendants from the gods, and in former d much respected. Some old families have retained this love an was formerly given to their forefathers, but many of the old naturally been abandoned since the French protectorate of 18 gained by France over this island after a very hard and prolo In the year 1880 Pomare V, lately deceased, signed over to Fr to government and the succession of any of his family to Tahiti after his death for a pension of $12,000 per annum. Government also granted pensions to all of the royal family formally annexed to France on June 29, 1880, since which ti a colony of the second class of the Republic of France.

GOVERNMENT.

The Government is vested in a governor and privy co members and a general council of eighteen members elect suffrage every three years. The latter body has the power to for the colony, subject to the approval of the President of t public, who, however, seldom vetoes any measure.

DISTRICTS.

Tahiti is divided into the municipality of Papéiti and eigh over which a chief is elected by each district with a select c members, which has certain limited power in judging land c and repairing roads, and other local matters.

THE CITY OF PAPÉITI.

Papéiti, the capital of the French possessions in Oceania, the west side of the island of Tahiti. It contains a populatio which number 3,500 are natives. It has a very good harbor, sages through the coral reef, and vessels of any tonnage may danger.

MUNICIPAL GOVERNMENT.

20th of May, 1890, Papéiti was granted a city government, which
the following officers: Mayor, two assistant mayors, secretary of
pal council, and fifteen members of said council. This council
or two years by general suffrage. The municipal government
ttle power, owing, no doubt, to Papéiti being the seat of the
vernment, which still has a certain control over city affairs. On
the municipal government is to be preferred to the old mode of
his place, and the results of the efforts of many members have
ved the condition of things in general.

AGRICULTURE.

in the annual report of the British consul at this place for the
e following, which, I believe, will enable those interested to judge
nce of this subject:

om I have consulted as to the agricultural prospects of this country hold such
s that it is not without some hesitation that I have drawn up this portion of my
only maintain that plantation enterprise can be made a success, others hold the
, and at the present moment the cultivation of crops for export or to supply
roduce now imported is almost entirely neglected.
ghly mountainous aspect of Tahiti might suggest that a very limited space only
be available for cultivation; but it will be found that, although the lofty vol-
hich traverses the center of the island does in some places terminate abruptly on
for the most part it slopes down to a belt of fairly fertile land, skirting the
greater part of the island. On the higher slopes and ridges of this range the
d arid, producing merely stunted bushes and a spare undergrowth. The inter-
are in many places covered with the wild plantain, or "fei," while the lower
alleys contribute liberally a natural production of vegetables and fruits, upon
ives greatly depend for subsistence. The alluvial land from the foot of the
the seashore is in most places narrow, being seldom over a mile in width. It
ver, for probably not less than 100 miles, and, together with the broad valleys
f the rising ground, offers tracts of land well suited for the cultivation of sugar,
tton. From past experience it is proved that the island of Tahiti is capable of
lent crops of these commodities. It may therefore be wondered at that both
ee are now largely imported, and that cotton offers but a meager supply to meet
ade for it in the market.
for the absence of enterprise which permits this state of things may be assigned
f capital and the disadvantages attending labor. There is but little capital in
nd labor is expensive and very difficult to obtain.
es, now mostly of mixed breeds, are indolent, very immoral, and lack entirely
esire to elevate themselves above their present position. Their requirements
asily satisfied. The land naturally yields plentiful supplies of breadfruit, plan-
, cocoanuts, and oranges, which serve their daily wants, and fish are plentiful;
luctance, to some extent, to toil for what to them must appear to be of but very
It may also be added that the communistic habits of the natives would not allow
side earnings, and thus we find that the average native does not care to work
ly his immediate wants and pleasures.
ave been made from year to year by the local chamber of agriculture to induce
gage in cultural and farming pursuits by offering prizes to be awarded at the
n July 14 to owners of the finest plantations and holders of the best live stock.

In some cases it has stimulated the people to work for the time, but as
permanent beneficial result.

Imported labor from various islands has been tried, but the result has
tory, the chief difficulty being caused by the immigration regulations not
sufficient hold over his men, while he has been bound by his contract to senc
at the expiration of his agreement. The prospect under the existing ci
encouraging, and, even were labor easily obtained, the same would hold pa
foreign enterprise is concerned, for, owing to the greater part of the arabl
in numerous small lots by different native proprietors, who are indisposed
would be found difficult to secure sufficient land in one place to form a h
large to carry on agricultural enterprise on any extensive scale.

An exception may be quoted in the large plantation of Atimaono, so
Papéiti, formerly held by an English company, which, from the reckless sy
manager, failed. It is at present lying practically waste; but this estate, if
prising capitalists, could undoubtedly, under proper management, be very

In addition to the remarks of Mr. Consul Hawes I will add

For some years past agriculture seems to have experien
activity, owing, no doubt, to necessary capital not being fo
the labor question. I am, however, happy to report that th
laws have in the past year been amended so as to permit plan
coolie labor from Tonquin, French China, or elsewhere, wit
necessary laws and restrictions; and, viewing the matter fr
standpoint, the regulations should be satisfactory to all conce

In July, 1891, an American company was organized in Ne
the name of the Tahiti Commercial and Improvement Co
capital of $500,000, the object of this company being to work
plantation of Atimaono and to encourage the native and wh
of the island to plant cane, which the company engages to g
expense to the planter. Much interest has been expressed her
this company will start or not, and the promotion has the b
the encouragement of the Government and every right-mind
community, and, if they really do make a start, will, withou
proper management, make a great success of this enterprise.

The only plantation productions cultivated for export
ton and cocoanuts, and also vanilla. The former staple ha
but poor prices in the market, owing to the general depressio
modity throughout the world during the past year, and man
inclined to discontinue growing it. Owing to the blight on
trees, which started in 1889 and which has caused the destruc
trees, and the overstock in the San Francisco market, there
little money in this cultivation for the past three years; but,
outlook for next year is more favorable. Thirteen tons of
exported from this colony during the year 1891, but the price
were very low. All of this quantity was exported to the U
except 1 ton.

Notwithstanding the very mountainous appearance of the
are nearly 200,000 acres of land suitable for the cultivation

on, vanilla, cocoanuts, and other tropical plants and fruits. In
ated in many works on sugar cane that Tahiti is the most desir-
y, and has been known for many years to the planters on the
uba and other islands of the West Indies.

s essentially an agricultural country, watered by numerous rivers
s, covered by a dense growth of timber, the decayed foliage of
or centuries enriched the volcanic soil, fitting it for the cultiva-
tropical plant.

e that Tahiti holds out a splendid opportunity for capital for the
t of its natural resources, and the day is not far distant when
of sugar will be annually exported from this colony to the United

EXPORTS.

–There were 6,127 tons exported last year, valued at $368,760,
of over 2,606 tons as compared with 1890. This extraordinary
not be accounted for, except that natives of the Tuamotu group
ecoming more industrious and are more appreciative of the value
an formerly.

of-pearl shell.—Of this valuable commodity 598 tons were ex-
l countries during the year 1891, valued at $242,275, the average
article during the year being 54 cents in Chilean coin per kilo-
5 pounds).

ells are found in the Tuamotu and Gambiers groups. The latter
produced very little shell during the past five years, the quality
inferior to the Tuamotu, which is equal to the finest found in
The Tuamotu shell brings a better price in the American and
arkets than any other kind. In former days the natives dived
simply to secure the pearls, but to-day the shell is the first care
rl second. Many pearls of value are found here, but no return
en rendered, and thus the value is a mere guess, but it may be
t $15,000. For the past few years diving machines have been
o use in order that more shell could be had without any harm
to the fisheries, for as soon as a lagoon appears to be used up the
causes the same to be closed; so, therefore, it is thought that
ines do little, if any, harm and are a source of revenue to the
vernment. There are at present nineteen machines in use, the
ich, with boat and equipment, is about $1,500 each, or making
pital invested at $28,500. Each machine pays a tax of $200 per
$8 per ton for the shell found.

ue of shell exported to the United States last year was $125,-
ng a little over one-half of the total amount exported to all
Although a portion was forwarded to European countries, yet I
t most of it remained in America. Several factories for making
ns and fancy articles made of pearl shell being started in the
tes, I am inclined to believe that within a few years most of the

shell exported from these islands will find sale in the Ar It would be a saving to American manufacturers to impor direct from here, which would be a simple matter by app in Tahiti.

Cotton.—There has been very little demand in the mar modity, and prices have been very poor for the planter. during 1891 exceeded those of the preceding year by 125, total quantity shipped being 572,246 pounds, valued at natives, encouraged by the rise in price in the beginning of great deal, which accounts for the shipments being so much m

Vanilla.—This article ranks fourth on the list, the tota being $35,789. The planter has suffered much, owing to paid this year. The depression is owing to the large stock hand in San Francisco.

The exports for all countries during the year 1891 am 831, an increase of $203,469 over 1890. These are the larg realized for Tahiti, and it is an interesting fact that $321, United States, as will be seen by the following table:

Table showing value of exports from Tahiti during the years

Country.	1888.	1889.
United States	$107,276	$192,46
France	102,456	94,69
Great Britain	91,330	190,28
Germany	31,513	54,27
Portugal	....	9,88
Other countries	1,400	....
Total	333,975	541,59

Table showing principal articles of export from Tahiti during th

Articles.	
Bèche de mer	pounds.
Coffee	do.
Cotton:	
In bales	do.
Seed	tons.
Desiccated cocoanut	pounds.
Fungus	do.
Vanilla	do.
Wool	do.
Copra	tons.
Shell	do.
Cocoanuts	number.
Oranges	do.
Trees (orange, etc.)	do.
Wax	pounds.
Hides	number.
Other	
Total	

ollowing table contains the values of exports, as shown by the con-
ices of this consulate for the year 1891:

Articles.	Value.	Articles.	Value.
rl shell	$125,487.94	Oranges	$4.563.29
	76,573.87	Coffee	2,842.65
	49,132.11	Fungus	602.93
	36,698.70	Miscellaneous	2,731.90
	16,681.62	Total	325,913.27
	5,000.00		
coanuts	5,598.26		

ifference between the above amount and the official table furnished
overnment is to be accounted for by the fact that many articles of
origin are reshipped to the United States, and accordingly not
in the official export table.

IMPORTS.

ing the value of all articles imported into Tahiti from all countries during the years 1888-'91.

Country.	1888.	1889.	1890.	1891.
	$365,945.60	$319,394.40	$384,504.00	
	100,800.00	53,433.60	90,326.40	
	95,534.40	92,501.60	118,814.40	
		12,744.80	24,542.40	
es	8,933.60	1,350.00	25,704.00	
	571,213.60	479,424.40	643,891.20	$626,841.00

be seen from the above table that the United States supply more
half of the import trade of this colony, the principal articles im-
eing flour, biscuits, sugar, wine (California), timber, soap, ships'
rosene, calico, prints, etc.

Table showing the principal articles of import during the year 1891.

Articles.	Quantity.	Value.
		$15,168
ons		49,512
pounds	2,605,354	60,096
do	483,452	11,765
do	416,374	13,013
do	12,575	2,280
do	263,448	2,573
do	53,383	1,373
do	294,910	14,813
do	113,042	3,705
do	6,642	1,603
do	9,154	1,469
gallons	1,767	2,880

Table showing the principal articles of import during the year 1891—C

Articles.		Quant
Vegetables	pounds	
Onions	do	69
Wheat	do	145
Barley	do	505
Oats	do	2
Bran	do	63
Opium	do	1
Wine:		
Red—		
In casks	gallons	39
In bottles	do	
White—		
In casks	do	4
In bottles	do	
Champagne	do	
Absinthe	do	5
Vermouth	do	1
Gin	do	
Rum	do	6
Beer	do	6
Whisky	do	
Bitters	do	
Amer picon	do	
Liqueurs, assorted	do	1
Cognac	do	4
Other liquors		
Vinegar	gallons	1
Mineral waters	cases	
Linseed oil	gallons	5
Turpentine	do	
Oils		
Coal	tons	1,
Bricks	number	34
Cement	pounds	168,
Iron	do	330
Timber		
Hay	pounds	27,
Drugs		
Paints	pounds	90,
Soap	do	246,
Perfumery		
Tobacco and cigars		
Matches	gross	8,
Calico	yards	250,
Parens	do	249,
Denims	do	34,
Silks		
Muslins	yards	82,
Prints	do	671,
Other cloths		
Ships' stores		
Kerosene	gallons	45,
Other articles		
Total		

SHIPPING.

le showing shipping entered at the port of Papeiti during the year 1891.

Nationality.	Sailing vessels.		Steamers.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
	14	4,485			14	4,885
	2	521			2	521
	286	12,476			286	12,476
	3	759	9	4,275	12	5,034
	1	340			1	340
	6	2,588			6	2,588
	1	64			1	64
	313	21,633	9	4,275	322	25,908

re all small schooners, mostly of American build, trading among the neighboring islands.

the year 1891 two new schooners were added to the trading fleet. arrived this year one new man-of-war schooner for the French nt, built in San Francisco.

J. LAMB DOTY,
Consul.

D STATES CONSULATE,
Tahiti, June 30, 1892.

STEAMSHIP-BUILDING IN SPAIN.

REPORT BY CONSUL TURNER, OF CADIZ.

the honor to inclose herewith a description of the new steamer *élago* and a series of photographs illustrative of the same, received irector of the Transatlantic Company, of Cadiz.*

the vessel which the Transatlantic Company placed at the dis- e secretary of the navy during the Huelva celebrations. In it he the officers of the foreign navies present at the naval review.

ished description of this vessel will be of interest to shipbuilders ng what can and is being done in Spain, and will be read with the constantly increasing number of tourists who are coming to the North German Lloyd's steamers, landing at Gibraltar and de trips to Tangier, Cadiz, Seville, Huelva, and Madrid. Here- service has been made in small, uncomfortable, not to say dan- ats, and a change to this delightful steamer will be highly appre- all who have traveled in the flat boat that plies between Gibraltar er.

R. W. TURNER,
Consul.

D STATES CONSULATE,
Cadiz, September 1, 1892.

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* Photographs sent to the Navy Department.

DESCRIPTION OF THE "JOAQUIN PIÉLAGO."

[Inclosure in Consul Turner's report.]

The trial on the part of the Spanish Government for admission as a
above vessel, belonging to the Compañia Transatlantica, Barcelona, intend
passenger service between Cadiz, Tangier, Algeciras, and Gibraltar, too
named port on the 27th of July last. The *Joaquin Piélago* is the first me
in Spain, and her principal dimensions are: Length over all, 202 feet 6 inch
perpendiculars, 185 feet; width, 28 feet; depth to awning deck, 21 fe
molded, 14 feet; draft, 14 feet; displacement, 1,204 tons; gross register
net register tonnage, 300 tons; horse power (natural draft), 1,250; speed
ice), 13 knots.

The vessel is built of milled steel, possesses a double bottom for part
is divided into six water-tight compartments. Her engines are trip
vertical inverted cylinders 18 inches, 30 inches, and 48 inches, and 36-inch
pressure being 160 pounds per square inch, making 106 revolutions pe
single-screw steamer, and her propeller is of delta metal. All the materi
construction, with few exceptions, are of Spanish manufacture. The pla
hull are from the works of Messrs. Duro & Co., of the province of A
makers of the materials employed in the construction of the armor-pla
Teresa, *Vizcaya*, and the *Almirante Oquendo*, which were built by Mess
Co., of Bilboa. The engines and boilers were supplied by the civil ar
The steamer has been built under the supervision of the bureau veritas an
for the highest class in the register of passenger steamers.

The special features of the steamer are her saloons and cabins. T
comfort and beauty. Tourists traveling between Cadiz and Tangier will
artistic taste displayed by her finishings.

As the cabins are in many respects novel in design and constructio
scription of them will not be found devoid of interest: They are of three cl
first, and second. The preferential is situated in the center of the vessel,
gine room, and is entered by way of the smoking room, which is itself ver
and furnished after the Moorish style. Fine carving, fancy tiles, costly
enter largely into its composition.

Passing down her stairs, the balustrades of which are of sycamore, th
having a thin covering of marble, adding greatly to the beauty of the surro
is reached. This is a handsome apartment the whole width of the shi
boast to say that very few steamers afloat can pride themselves on the p
charming. This is also on the Moorish style and forms the "*patio*" to
above, from which the saloon is visible. The floor of the latter is a mosai
hard woods. There are two luxurious divans at the sides provided with
in the four corners of the room, on pedestals, are exquisite vases in harm
ing decorations. The room is provided with two tables capable of enlarg
duced state each table will accommodate four, and when enlarged eight per
are rather ingenious, being made on the telescopic principle, in order to
unencumbered by excessive furniture when not required in their enlarg
ingenious arrangement is that by which the porthole windows, when open
from view. A small part of the wall above is neatly hinged, so that on o
is allowed to pass and closing it is held in hidden position. The wind
provided with fretwork shutters through which both light and air are filtere
is a profusion of much rich carving, the eye can easily be deceived by th
and there of a quantity of fancifully molded papier-maché, which, after u
process, dries as hard as stone, and, when gilded and touched with colors,
tistic effect. The walls of this saloon are composed of marble; fancy til

hangings, carpets, and tasteful gilding also abound. Passing into the staterooms,
al feature is the ingenious way in which two adjoining rooms may be rapidly con-
one. Many other admirable contrivances are noticeable for the speedy conversion
d chairs and even wardrobes into beds, etc. The walls of the lavatories also call
note. They consist of a light framework of iron, on which is stretched galvanized-
covered with a layer of Portland cement painted stone color. This sort of bulk-
ceedingly advantageous where a continuous water-tight surface is required, and
nliness is desired and water must run frequently, and is preferable to wood for ob-
ons. The first-class dining saloon is a comfortable apartment, and a noticeable
he automatic arrangement for tipping the seat at each side of the table close up
n use, thus leaving plenty of room for moving about. The staterooms belonging
s are also exceedingly well designed. By an ingenious arrangement of the furni-
ılkheads each two of those reserved for ladies and three of those for gentlemen can
turned into one large room, and *vice versa*. The partitions are hinged to the ceil-
n be swung up and made fast like a door, and all the fittings are detachable and
being fixed elsewhere. In the space between the beams the sofas can be safely

lls of the second-class water-closets are faced with Portland cement and tiles.
ups are fitted on the bridge deck for installing a dining table to accommodate ten
This is a charming innovation, which will be greatly appreciated by passengers, who
e able on those calm, oppressive days so common to the south of Europe to lunch
l fresco." The forecastle, which is in the 'tween decks, is on a par for excellence
st of the ship. The sailors' berths are of iron and canvas, with leeboards of var-
h pine, and are arranged to fold up against the ship's sides. These have a wooden
ch is also detachable. The vessel is provided with the most modern appliances
nachinery. Her life-saving equipment is also of the highest order, and is far in
he Spanish Government and the English Board-of-Trade regulations. She is also
ith improved mechanical ventilation. In order to comply with the Spanish Gov-
quirements relating to mail steamers, the vessel has been supplied with the follow-
of artillery: Two guns of the Hontoria class of 9 centimeters and two quick-firing
im Nordenfeldt) of 11 millimeters. She also possesses a well-stocked armory.
in Piélago is also fitted throughout with the electric light, and she is provided with
ght for entering and leaving port at night.

m of £50,000 named by some as the cost of this steamer far exceeds the correct
hen, however, it is considered that she has been fitted out in all respects like a
ht, and that no expense has been spared in her equipment, it will be understood
inary comparison of "so much per ton" is possible. English and American build-
able to appreciate the enormous difficulty surrounding a first venture of this na-
incipal among which must always be the lack of experience in a new industry on
workmen. Be it said, however, to their honor, that the Spanish artisans have
mselves to be an industrious and intelligent set of men. Spaniards are becoming
nore alive to the necessity of putting their shoulders to the wheel and occupying
n in the commercial world which they feel ought to belong to them. The Com-
satlantica has found that shipbuilding in Spain is not only possible, but, under
umstances, profitable, and they state that they can certainly turn out cabin work
ses of decorations at less cost and better finished than they have heretofore secured

x hours' trial the *Joaquin Piélago* maintained an average rate of speed of 14½
maximum attained being 15 knots. This result was considered eminently satisfac-
far in excess of what was expected.

mpañia Transatlantica are now making preparations for the construction of a large
c steamer in their dockyard here.

AMERICAN TRADE IN EASTERN ASIA.

REPORT BY CONSUL SEYMOUR, OF CANTON.

I have the honor to communicate some items in regard to the commerce of this consular district, as gleaned from the official returns of the six custom-houses located along the coast of this province of Quang-Tong for the year 1891.

There is no classification of the nationality of imports and exports in those returns; but, as only European merchants are engaged in selling cotton goods (and many other commodities) brought from foreign countries, there is certain to be, as there now is, small chance for American cotton goods to be brought vigorously into competition with cotton goods from Europe in the markets of a large portion of eastern Asia, unless American manufacturers of cotton goods adopt some plan of combination to maintain an active and aggressive system of keeping their manufactures within the reach of native merchants in these eastern markets; and to this end I urgently recommend the plan of employing experienced and trusty American salesmen, assisted by indispensable native compradors, who would be safe advisers as to credits, as the most effective way to successfully compete with European merchants and manufacturers in the East. Canton sent to the United States last year over $5,000,000 worth of merchandise.

Without grouping the prominent features of commerce in India and Japan with those of intermediate countries, it is merely necessary to mention the significant fact that last year this province of Quang-Tong imported raw cotton to the value of about $1,100,000 in gold, and cotton yarn to the value of about $9,000,000 in gold, or over $10,000,000 worth of cotton and cotton yarn (mostly from India), which was used, with considerable native cotton, in Chinese manufactures, instead of extending importations of foreign goods to meet the consumption.

With moderate amounts of American ham and bacon, tinned milk and fruits, clocks, and other articles of necessity or utility among the imports of this consular district, which might be increased tenfold by a thorough canvass of the markets by earnest American salesmen, we must confine our items of American imports exceeding $100,000 to ginseng, which this province received from the United States to the value of $170,000; flour (from California and Oregon) to the value of about $600,000 in gold; and kerosene to the extent of 1,106,565 cases, which was about one-fourth of all the American kerosene received by China in 1891.

Russian kerosene is steadily increasing in India, China, and other Asiatic countries. In 1891 China imported over 1,050,000 cases of Russian kerosene, or equal to about one-fourth of the total imports of American kerosene into China.

Oil pipes are being laid between the Caspian Sea and Persian Gulf, and iron-tank ships are being built to bring Russian oil in bulk to eastern Asia;

nous oil tanks are being constructed in Hongkong for the recep-
storage of Russian kerosene. The indications are that keen com-
vill exist for the control of this important trade.

eaning of all this is, that, in order to secure the benefits of Asiatic
or American productions and manufactures, there must be vigilance
ion. It can not be achieved by dumping piles of circulars before
o can not read them; but it can be accomplished by means of
"face-to-face" work between business men.

CHARLES SEYMOUR,
Consul.

ED STATES CONSULATE,
Canton, August 18, 1892.

THE SULTANATE OF JOHORE.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

the industries, agricultural products, and costumes of the Sultanate
will be comprised within the splendid exhibit destined for the
'air, and as the Sultan Abu Bakar will be in Chicago with his suite
e exhibition, I have thought that a description of himself and
ight be of interest to those who may meet or see him.

ultanate of Johore, one of the richest independent kingdoms in
sia, is 14 miles from Singapore across the island, on the mainland
lay Peninsula. The Sultan is an enlightened and humane ruler,
s high in the estimation of European nations, as is shown by his
decorations. He is a knight of the English orders Grand Cross
hael and St. George and of the Star of India; knight of the Royal
)rder of the Crown (first class), of the Grand Cross of the Order
ua, and of the Chinese Order of the Dragon; commander of the
Saxe-Coburg and Gotha; has a presentation gold medal from the
Wales; and is the sovereign of his own national orders. He is a
lish student, and has traveled extensively over Europe.

istory of Johore extends back to the Portuguese days, when it took
y second to that of Acheen—in the one hundred and forty years'
ver Malacca between the Portuguese and the Dutch. Its history
time until 1819, at which date Sir Stamford Raffles founded
, is a record of petty wars and family quarrels. In 1819 the
Johore deeded to the British the island of Singapore, comprising
e miles, reserving for his family certain lands which to-day are
aluable. In 1877 Johore added to its possessions the Sultanate of
that at present the little Kingdom embraces about 15,000 square
tching from latitude 2° 40′ S. to Cape Romania, and including
islands that lie along the coast to the south of 2° 40′. It is sur-
on three sides by the sea; on the fourth side its boundaries are

Malacca, Jehol, and the River Endau. The population of
(22 to the square mile) is confined to the districts lying on
rivers, the interior of the country being covered for the most
forest, which is rich in rattans, rubber, damar, and jungle pr

Lately the Sultan has been building a railroad into the he
tion, which will eventually open it up to plantations.

In the north of Johore is the famous Mount Ophir, of Bib
is over 4,000 feet high. At its base the natives have found
but as yet it has not been systematically and scientifically ex

The population of the country is remarkable for containin
ber of Chinese than Malays. The Chinese are chiefly foun
of gambier and pepper, which are the principal products of e
pore. Sago, coffee, tea, and cocoa are grown with varying s

As nearly all the export of the country goes to Singapore,
from the blue book of 1891 will give a fair idea of its agricul
eral output.

In minerals the little Kingdom is peculiarly rich. Iron i
everywhere. Float tin is found in paying quantities and i
buang. Within a month rich deposits of the metal have bee
the Johore River within 15 miles of Singapore. The Sultan
ous to firms and persons wishing to either mine or farm. He
land rent free and untaxed for as long a time as they wish t
simply pay a small royalty on metals or a small export tax o
some of the products of the soil. It is this wise policy th
175,000 Chinese laborers to his country. These Chinese su
by nature indifferent to their ruler, are obedient and indu
and the source of the principal revenue of the nation.

The country is traversed by three large rivers—the Mu
and the Johore—and many smaller ones, making splendid n
into the interior. The capital town is Johore Bharu, o
which is separated from the island of Singapore by the Str
and contains about 25,000 inhabitants. Close down to the
the Istana, or palace of the Sultan, backed by well-built Gov
ings. The Sultan has two other palaces, one in his out prov
the other, which is just finished, in Singapore. He keeps u
of imported horses, and is much given to entertaining. T
palace is all of gold, and it is said that he is the possessor
worth of diamonds.

As I have said, the Sultan's expectation is to exhibit at
all the products of his beautiful country and thereby interest
tal and American "push" in its development. He hopes
with his secretary, Dato (lord) Sri Amar d'Raja, who is a co
English order of St. Michael and St. George, and suite of
the last of next April, going to Carlsbad for a month for th
there to London, where he will be entertained by the Queen;

York, arriving about the 1st of July. He will spend fully three the United States, visiting all its important cities, with an object contracts for mining, electric-light, and other machinery.

is no blue book published in Johore, and no authoritative facts ed in regard to the full export of the country; so I append its om and exports to the Straits Settlements for the years 1890 and will be seen that there was a material decrease for the year 1891. aused in a large measure by the failures of large firms in Singa- the low prices prevailing on the exchange. The present year brighter prospects, and it is confidently expected that the year how a large increase over 1890.

showing the value of imports from and exports to the Straits Settlements.

Year.	Imports.	Exports.
	$3,627,484	$6,525,68
	3,062,142	4,827,801

aves the balance of trade in favor of Johore by a large per cent.

ROUNSEVELLE WILDMAN,
Consul.

D STATES CONSULATE,
Singapore, July 25, 1892.

CATTLE-RAISING IN THE AUSTRIAN ALPS.

REPORT BY CONSUL HAWES, OF REICHENBERG.

last volume of the imperial royal central commission's monthly Prof. Dr. Wilckens describes the condition of cattle from 1880 the cattle-raising districts of the Austrian Alps, viz, Peuzgau, Murboden, Levanthal, Zitterthal, Pufluthal, and Montavon.

Wilckens shows a decrease in cattle-raising in certain districts of 10 in Mürzthal of even 58, per cent. He gives as a cause that in munities, especially in Mürzthal, estates have been bought and ith forests in order to be used for hunting purposes. Thus an ore than 5,000 joch, belonging to the St. Ilgen community, with for 300 head of cattle, and a neighboring estate of 700 joch were o hunting grounds. This was also the case with the Höllalpe, pasturage for 200 head of cattle. In the district Aplenz, between 1880 and 1890, no less than forty-seven estates, pasturing 820 head were bought and turned into hunting grounds. In the district on the Kräuterin, up to five years ago 800 oxen were pastured. st two years this territory has also been devoted to the hunt.

ger has most poetically described this disappearance of work for t in his novel "Jakob der Letzte."

The condition of the peasant and the raising of cattle are
crisis, the result of which will be the further reduction of
which will be confined to the most profitable varieties. A sec
cause of the decrease is a lack of laborers. In Mürzthal
receives $40 yearly and a female $24, with food. A third
indebtedness of the peasants. Lands are allowed to run down
of pasturage seldom takes place. Manure is reserved for grain.
is cultivated that the peasant himself needs—wheat for cake,
oats for horses, flax for clothing and bedding. Cattle furnis
with milk, meat, and leather; sheep furnish him wool, and
In short, the Alpine peasant is of the opinion that all his need
plied from his own farm. This simple management is de
because all his productions are below mediocrity. The cow ne
him with more milk than he needs for his household. If mor
the peasant and his household simply consume more milk and
tom in the Austrian Alps does not permit milk and butter to b
in Tyrol, Vorarlberg, and Kürnten are there a few milk con
collect the milk and dispose of it.

The cultivation of grain in most Alpine lands is not prof
this is not generally recognized, as the peasant keeps no acco
of the best farms in Mürzthal the farmer succeeds in getting
barley not more than every seventh grain. In the mountains
one in five is recovered. It is, however, not known. Gra
milk is not measured or weighed. They do not wish to k
Only by his increasing debts does the peasant know that he
badly, but this knowledge comes generally too late and costs
and lands.

All these facts go to account for the decrease in cattle-
Alps, where, betweeen the years 1880 and 1890, the number
decreased 10,024 head, or 6 per cent, whereas the population
about 4 per cent. In these Alpine districts are the only pure
trian cattle, and these should be preserved. Moreover, Austri
supply of cattle, and can not afford to have this supply decrea

Good cheese must even now be imported. In 1891 the im
amounted to 1,772,000 kilograms, while there were only 481,
exported.

All this may be of interest to America, which is alway
markets for her beef, and I venture to predict that within th
Austria will also become one of our good customers.

JNO. B. H

UNITED STATES CONSULATE,
Reichenberg, September 5, 1892.

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THE LABOR PROBLEM IN FRANCE.

REPORT BY CONSUL LOOMIS, OF ST. ETIENNE.

ever-present and disquieting question in France, as in all other
countries, at the present time is the labor problem. The conditions
once link and repel the laboring man and the capitalist in France
the same as the conditions which environ capital and labor through-
nental Europe, and particularly is this so where the ideas and
socialism enter as an active factor into the struggle.

hile my purpose in this report is to explain as clearly and briefly as
actual condition of the French working classes to-day, yet at the
I hope to cast an occasional glance at some of the other European
, particularly when it comes to a discussion of means for solving
problem.

THE OLD ORDER CHANGES.

cally speaking, organized labor in the modern sense had no ex-
France until 1884. The ancient guilds were abolished by the
, which assured freedom of labor, but not the certainty of occu-

r the old order in France the workman who chose his trade was
t for life. His livelihood was assured, as a rule, but he was bound
vn industry for life and, generally, to the factory or workshop in
made his start. He was chained to his task, and was not even at
change work in the shops and towns for work in the fields. He
in fact, a part of the "fixtures and plant" of his employer.

the irresistible genius of universal emancipation struck the shackles
French workman, he was free—but dazed. His sense of liberty in-
and confused him. For half a century the laboring classes drifted
endent, but helpless. Individuals sometimes rose to eminence, but
no permanent improvement in the condition of the workmen. For

a few decades after the revolution, while the country was undergoi quent changes, the laborer was able to assert himself and to secure fai and good treatment. Machinery had not come into use then, but w advent the workman found himself more and more dependent up caprice of the capitalist; in short, he had liberty, but little else.

Then it was that the seeds of socialism were sown. The workman to the State for help; he got some relief by the law of 1848, but it w porary and experimental. The professional agitator taught the doc State assistance and implanted in the mind of the workingman the that it is the business of the Government to regulate all relations b capital and labor. From these seeds there rose the poisonous plant munism and socialism.

Socialism, declare the French and German agitators—and th hundreds of them—will correct all abuses and remedy all evils. It w the workman plenty of work and fair wages and settle forever the dif between capital and labor.

The spread of socialistic ideas in France has been swift and gre the enactment of the law of 1884, which authorizes the formation company, society, association, or syndicate for the fostering and pr of any sort of industrial, economic, commercial, and agricultural i This law also says that not only shall it no longer be an offense to the purpose of bringing about a strike, but that the members of the ciations or syndicates, as they are called in France, shall be perm enforce their views in reference to strikes and the coercion of capita imposition of fines, punishments, and boycotting.

Before the passage of this law in 1884 the working classes could n unions, syndicates, or any sort of kindred associations. They ha ited by their privileges and opportunities. Every branch of tra labor has its syndicate now; waiters, journeymen, barbers, and groo their syndicates or unions, as well as the participants in the higher industry.

Underneath all this activity of association, of meetings, of tal passing resolutions and drafting of memorials lies the restless spirit o ism. Socialism is the hidden force, the mysterious, dangerous, un fascinating panacea for all the workman's grievances and material ill contemplation of this idea fires his imagination and adds to his sense portance. He dreams of the time when he shall be capitalist as laborer and listens with a willing ear to the subtle talk of the social ref

SOCIALISM.

Socialism in France, as in Germany, is of two kinds—immoder moderate. Both classes of socialists hope to reach the same end, moderate socialists, who call themselves social evolutionists, want to the existing order of things slowly and by a process of education an evolution. The other socialists call their form of socialism "collecti eir desire is to overturn society at once and effect a condition of al communism by force of arms. Collectivism and communism, in ench sense, mean pretty much the same thing, though the former is ore popular term of the two.

ong the many things which the socialists want are:

) All capital to become the property of the State.

) Assured peace among the nations and an international federation of ople.

) All profits, production, and wealth to be divided among the people.

) Universal education and moral culture.

) Insurance in case of enforced idleness, sickness, and old age.

) Liberty of the press, of speech, and of meeting.

) Litigation without cost.

) Free instruction, together with books, clothes, lodging, and food—be furnished by the State free of charge to the individual.

) Abolition of standing armies and all privileged orders.

e French socialists include in their plan the abolition of many local and conditions peculiar to the country.

e Siècle, one of the leading journals of Paris, says:

> rance, as in other countries, the socialists are organizing and putting themselves into n to fight the existing order of things. We can no longer look with doubt and skep-pon the strength and purpose of this movement. It tends to one thing—an inevitable ation more or less distant. We have published the proceedings and results of the con- the Bourse du Travail (Labor Exchange) held at St. Etienne. From this congress significant result—the confederation of all the workmen's unions under a single man-. We foresee the working population organized into a sort of army, disciplined and foment a riot at the nod of the socialist leaders. Without doubt a very large number men are not members of these syndicates or unions, but the revolutionary socialists are g on all sides and swelling their forces daily. The socialist propaganda is incessant efatigable, and it is uncommonly successful, in that it addresses itself to the ignorant le. It is not too much to say that the day will come when the hundreds of thousands men in Paris, in Lyons, and in all the great mining and industrial centers may be put gressive motion by the order of some cabal of agitators. Revolutionary socialism ding, and one can mark with ease its strides and progress.
>
> revolutionary spirit which we thought was destroyed in 1871 now rises with renewed rdor, and activity. It is a power that must be recognized; it will be necessary for us with the federations of labor. It is a new, blind, dangerous force, but one which the nent and Parliament are called upon to watch with closest care.

is extract, in the opinion of conservative people, states fairly and fully nger and the extent of the socialist movement in France at the present

SYNDICATES AND UNIONS.

ce the law of 1884 authorizing the formation of industrial, trade, and ercial associations was passed there have been formed upwards of 1,300 ates or unions. These are commonly classed under four heads—agri-l employers, industrial syndicates, workmen's industrial syndicates, ixed syndicates. The agricultural syndicates are found in more than six hundred and seventy districts, and they have been the r ing the farmers from fraud in the purchase of fertilizers an The fees or dues vary from 1 to 5 francs a year, and in 1891 298 members enrolled. Laborers are not, as a rule, taken cates.

EMPLOYERS' SYNDICATES.

The employers' syndicates are by no means so powerful a In certain branches of trade and in lines of commerce the to combine and keep prices up, but efforts of this sort have and successful enough to excite much comment or alarm. of union and harmony among the syndicates representing the and no syndicate of employers gives itself much concern ab ings of syndicates representing other lines of business.

There is no general combination against labor on the p ployers' syndicates, the only sufferer at their hands being the Still, they have in the industrial trades the prestige and str union and are able frequently to impress themselves on the politician with some degree of force. There are more tha syndicates, with an aggregate membership of 106,157.

TRADES UNIONS.

The first thing that strikes attention in examining the statistics of wor is the disproportion between the number of syndicates (1,250) and the (205,152). According to the opinion of those best qualified to judge, th dicated workmen does not at present exceed 6 to 7 per cent. On the o number is gradually increasing there can not be any doubt; but up to t desire on the part of the working classes to join these institutions has no portion to the alacrity displayed by the advocates of unions in forming accounted for in two ways—either French workmen in the mass are gen the practical personal advantages to be obtained by such associations, referred to is still very strong in French nature and disinclines a good prosperity to restrict his freedom of action by obligations which, though towards raising the wages of his neighbor, may, for all he knows, sens It is difficult, in a highly vigorous nation, where some skilled workmen c by individual energy from 15 to 20 francs a day, to rapidly convert the la more than a lukewarm belief in the merits of unselfish combination, pa whole question is mystified and complicated by countless political and which they do not understand. It is interesting to note how many emp essential to get work punctually done, have been quick to observe such h of their best workmen, have indisposed them for and prevented them fro the encouragement they have given to personal energy and by the jud gratuities. But, although the total amount of workmen already syndica small (the average number belonging to a syndicate is about 164), the been formed is widespread and very formidable; and these syndicates half empty *cadres*, into which the vast labor forces of the country coul drafted.

The well-to-do workman, in fact, approves at present of the 1,250 s well-planned organization and extensive ramifications, much in the same standing army, to which he does not think it necessary to attach himself

> mes to come and good and steady workmen, as well as bad ones, to be thrown
> it is more than likely that the numbers would soon rapidly swell; for, though
> ombination in practice, the majority may be said to have been thoroughly won
> theory. What they would probably like would be to employ it as an occasional
> ast their masters whenever they saw an immediate personal advantage to be de-
> s use. Moreover, trades unions and strikes are still so inseparably connected in
> a Frenchman that to belong to the former seems necessarily to involve an imme-
> avoidable resort to the latter, and, as the majority regard strikes with disfavor, it
> at, while trade continues good, the violent language of noisy extremists will pre-
> dicates filling as rapidly as they would if the policy preached were a little less
> is cautious behavior and reluctance to commit themselves is perhaps also due,
> sure, to the remarkable common sense of the French lower classes. That their
> a rule, is used towards deterring workmen from joining syndicates is probable,
> resting to observe in talking with them how shrewdly they seem to have grasped
> and how needless they consider it to make personal sacrifices or run unnecessary
> when the tide of itself is running so high in their favor.

regoing paragraphs from the exact and elaborate report of Mr.
Stephen on the labor question in France would give an inaccurate
situation if he had not happily called attention to the fact that,
nding the limited membership of the workmen's syndicates, their
he minds of the working classes is enormous. Every large em-
izes this and understands what the power of organized labor would
ntent became general and a majority of the working people went
ndicates and arrayed themselves against capital. So at present it
unt of these possibilities for evil that the syndicates or trades
ire distrust and concern.

m of the workmen's syndicates is to secure high wages, to assist
ho are out of work, and to find employment for them without
he fee for becoming a member of one of these organizations is
5 or 20 cents; the dues vary from 10 to 30 cents a month, the
being exacted where there is a benefit fund attached to the syn-
some syndicates unemployed members receive a franc or two per
syndicates are governed by committees of administration, which
me instances, as many as twenty-five or thirty members.

yndicates are widely distributed, having been organized in some
ts. In Paris there are 167; in Lyons, 107; in Marseilles, 75;
x, 61; in Toulouse, 26; in Nantes, Rouen, and Roubaix, 20; in
e, 43.

CATHOLIC LABOR UNIONS.

ephen, in discussing the subject, says:

> another class of syndicates to which it may be well to allude, namely, Catholic
> unions.
>
> introduction into France of universal suffrage, and more especially of late, the
> rch and the party supporting it have been directing their attention to extending
> they already possess over portions of the rural community to industrial classes.
> re be in reality any ulterior political motive connected with this movement is
> range of this report to decide, but the most casual observer of existing labor

> problems can not fail to be struck with the fact that the two extreme
> France, by whatever motive they are actuated, are equally straining ever
> wage-earners into formidable battalions. Perhaps the distinction betwee
> two may be described by saying that while the one is endeavoring to con
> prospects of an order of things that may never be realized, the other is se
> cruits by a system of patronage and privilege of which the ordinary wor
> pared occasionally to avail himself without necessarily being converte
> preached.
>
> If kept free from politics, the counteracting effect to the extreme view
> be beneficial, but if, on the contrary, it should prove that there is a hid
> probably do more harm than good so far as a peaceful solution of the soc
> cerned.

The foregoing remarks from Mr. Stephen's report to th
ernment on the labor question do not, in my estimation, do
the scope and work of the Catholic syndicates. This part o
is one of the great industrial centers of Europe, has many
cates; they accomplish a great deal in a quiet way for the go
ing people, and I consider them efficient as a barrier agains
tide of socialism. The church, so far as I can learn, organi
on a practical, liberal scale and invites the working peopl
their own and enjoy their benefits.

THE LABOR EXCHANGES—A NEW POWER.

The multiplication of syndicates, or labor unions, thr
gave rise in the minds of the professional labor agitators to a
idea, namely, that of organizing a central labor bureau, wh
trol Paris and, through its branches, all of the other importa
gions in the country. Following this idea, the Labor Exch
du Travail, was established in Paris at the solicitation of t
socialist members of the various Paris trades unions.

In 1887 representations of a plausible nature were made t
authorities of Paris and permission to establish a labor exc
The avowed objects of the innovation were to improve the re
labor and capital and to furnish a free intelligence office
bureau for the working classes. The establishment of the e
been effected by the socialist element, its management fell at
hands, and the power has remained with them. These rest
lost no opportunity to widen the breach between capital
short, they are mischief-makers, whose sole aim is power and

In other towns similar institutions have been organized
sion has been too frequently one of mischief; their efforts are
not for peace and the profit of the workman. They assume
to settle disputes between employers and employés on terms
to the two parties concerned, but to the socialist leaders
change. The moment a quarrel arises between master and
from the exchange appear to fan the flame. Occasionally

admission to the premises; but that does not often happen, for the general disposition in France is to cringe before the asserted demands of labor. There is no institution in the United States like the labor exchanges of France. Here it is a municipal institution, for which the cities pay dearly. In Paris the new labor exchange cost about $600,000, and it receives a sum of $10,000 each year in addition to some small gratuities. The exchange is a municipal institution, but spurns all advice and interference on the part of the municipality; and the fear of the labor party is so great that no one dare question the ways of the socialist managers.

The labor exchange of Paris found employment last year for upwards of 29,000 workmen, which fact is, of course, to its credit. The establishment is handsomely equipped and conveniently arranged. It is at present chiefly engaged upon a campaign in favor of the eight-hour system and in the collection and publication of labor statistics. Its internal affairs are well managed, and it has attached to it two hundred and twenty syndicates.

THE COUNCIL OF PRUD'HOMMES.

In the important matter of providing for the settlement of small disputes in the industrial and commercial world, the French have a system which might be followed in the United States with much profit. The theory of the French plan is to refer difficulties to experts for arbitration. The plan as formulated in law is most excellent. A council of prud'hommes, or experts, is created and divided into two branches or committees.* One branch is called the bureau of consultation; the other the bureau of judgment. As its name implies, the office of the first bureau is to effect a conciliation between the contending parties; but, in case of a failure to do this, the case goes to the bureau of judgment for settlement, and where the sum involved is less than $40 there is no appeal.

The bureau of conciliation is composed of two members—one an employer, the other a workman—chosen from different industries. They preside in rotation, and meet at least three times a week.

The secretary calls the cases in the order of their enrollment. Default in appearance is not ordered till one hour after the time of meeting. Where the men composing the bureau of conciliation do not feel competent to decide a case before them, it may be referred to an expert. When both parties have been listened to, the two prud'hommes do what they can to effect an agreement. They have considerable power and can compel the production of witnesses and documents. It is the custom of the committee of conciliation to deliberate before proposing a plan of settlement. If this settlement is accepted, the secretary draws up the conditions agreed upon and the president insists upon their honest execution.

In the event of a failure to bring about an agreement, the case is referred to the committee or bureau of judgment, to the secretary of which body it is submitted in writing.

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*See inclosure 7 to supplementary report.

BUREAU OF JUDGMENT.

The bureau of judgment is composed of not less than two workmen two employers, equal numbers being essential. This bureau meets onc oftener every week, and if either of the parties summoned fails to appe the time indicated, he is judged by default.

When the respective parties are called, they are heard in turn, and president questions them. When the case has been stated, the counc prud'hommes comes to an understanding in secret concerning the verdi be rendered. The secretary draws up the judgment, and it is bind Counsel are not admitted to this tribunal, but minors may be accompanie parents or guardians. The president of the council maintains order can call on the police when necessary. The council is empowered to pu disturbances in workshops by imprisonment not exceeding three days. cases involving a larger sum than $40 appeal can be made to the tribun commerce.

It is proposed by a new law to enlarge the powers of the counc prud'hommes and to give them jurisdiction of disputes between work themselves and over salaried clerks and female employés.

The tribunal of prud'hommes has much to commend it, and its result very satisfactory. It reduces the volume of litigation, promotes better fe between employer and employé, and saves money. In 1891 the one hun and sixteen councils of prud'hommes in France disposed of sixty thou cases. As a rule, about 70 per cent of the cases are settled by the comm of conciliation and only 30 per cent go to the bureau of judgment, whi the council of prud'hommes for the chemical industry in 1891 only 11 cent of the cases were taken to the bureau of judgment.

The councils of prud'hommes are instituted by Government decree, the request of the local chambers of commerce. At present they have j diction over disputes between employers and employés in the metal, te chemical, and building industries.

HIGHER COUNCIL OF LABOR.

There have been established within the last year in France a labor bu and a higher council of labor. This latter body was organized for the pose of illuminating such phases of the labor question as may come befor Parliament for discussion. It consists of fifty members, chosen from mem of Parliament, workmen, employers, syndicates, councils of prud'hom and experts on economic questions. In addition to the members so cho the following are *ex officio* members: The director-general of public w for Paris, the president of the municipal council of Paris, the directo local commerce, director of technical instruction, commissioners of rail and other public functionaries who have to deal in a particular way with labor problem. The council meets at the call of the minister of the inte Its composition was bitterly attacked by the socialist deputies because t were only sixteen workmen among the members.

ddition to this higher council of labor, a labor bureau has been d. It is attached to the department of commerce, and its functions ollect, edit, and publish statistics bearing on the relations between nd labor. Its work is intended to be nonpartisan and without bent It will give facts only and not attempt argument or conclusions. l expense of this bureau at present is $30,000 a year.

ARBITRATION.

Government has proposed a bill to facilitate arbitration, which, with a few amendments, will be enacted. By the terms of this bill the tice of the peace is made the intermediary. When employers and kmen wish to settle their differences by arbitration, they may file a on of these intentions with the nearest justice of the peace. If es agree to submit the question to arbitration, an equal number of s are named to present the case for the respective contestants before ce. If no agreement can be reached, the justice, who has no vote, n them to select an arbitrator or two arbitrators, who may choose re. If the arbitrators do not agree or can not unite upon an umpire, re of the arbitration is set forth in an official report, a copy of which ned to each party without charge, a third copy being filed with the of commerce. If a settlement is reached, it holds good in law. rict where the arbitration takes place is charged with all expenses. consent of both parties the committee of conciliation may be transnto a permanent council of arbitration and conciliation, in order avert or regulate fresh differences of a collective character which e upon the conditions of labor bearing.

UNION AND NONUNION MEN.

membership of the labor organizations in France is not yet large o enable the union men to persecute and coerce the nonunion men egree to which such measures are sometimes practiced in England and .

t the syndicates have done is to bring pressure to bear on employers urpose of securing the dismissal of unpopular workmen. The courts cided in such cases that a workman so discharged can not recover from the syndicate which secured his discharge, unless threats of nd boycotting were accompanied by actual fraud or physical force. so been held by the courts that, while workmen may recover damn discharged by employers who were forced to the action by the of syndicates, employers, in their turn, can not recover damages dicates for boycotting their establishments.

BENEVOLENT SOCIETIES AND ENTERPRISES.

y large corporations and industrial employers as well are doing a l to increase the comfort and prosperity of their work people. In 1 to the report on coöperation and profit-sharing, which immediately follows this report, will be found a sketch of the benevolent plan ado one of the great railway companies. Many large mining and manufa companies furnish comfortable houses at a low figure to their emplo provide them with the means of obtaining food at low prices.

In some of the silk and ribbon factories in the country near Lyons Etienne, where large numbers of women and girls are employed, married women are lodged without cost in dormitories by the emplo they are under the immediate supervision of "sisters." In mo cooked food is furnished at its market value, nothing being charge preparation. It is needless to say that the wages of the female emp these establishments is low and the hours of labor long—generally in the morning till 7:30 in the evening; the average wages are 1 f 19.3 cents, per day.

Employers have recourse to many expedients for keeping their r state of contentment, but all of their plans are more or less an app of the principle of profit-sharing. Some employers, after two or thr of satisfactory service, pay a small percentage on the annual earning men, which, in the case of the average workman, amounts to $20 This bonus is usually about 5 per cent of the salary.

At this time attention may be called to a form of participation profits which takes the combined character of a savings fund and ments a provident and pension fund; the details will be found in i 2 of the report on coöperation and profit-sharing. The number of pants is fixed at 100, but may be increased. The amount to be dis is divided into two hundred equal parts. The participators who s for a term of less than six years receive one share; those over six a twelve years, two shares; and those above twelve years, three share committee of management is composed of the partners in the fir clerks, four foremen, and six workmen. After twenty years of partic or when he has reached the age of 70, the workman can draw his mo do what he wishes with it. In case an employé leaves the firm, he c his deposits, but loses all further right to share in the profits.

NEW LAW CONCERNING WOMEN AND CHILDREN.

A law has recently been enacted which goes into effect on Ja 1893, respecting the ages and hours of work for children. Hencef children less than 12 years of age can be employed in workshops or fa children under 16 may not work more than six hours per day, child tween 16 and 18 will not be permitted to labor more than sixty ho week, and when over 18 shall not work more than eleven hours per day law also provides that there shall be recesses during the day amounti aggregate to sixty minutes. No woman or child under 18 years can be employed in the future more than six days per week, nor on the legal holidays. Children of either sex under 13 years can not ployed on the stage in theaters in any capacity.

are the principal points of a law which is a great advance in its way
story of labor legislation in France.

her law which has just been voted will seem particularly humane in
hen one remembers to what a very considerable extent women are
l in workshops and factories in France. The law refers to women
anced state of pregnancy and prohibits them from working for a
ut provides that the employers shall continue their regular salary
e enforced absence.

THE FRENCH WORKINGMAN AS HE IS.

e sketched in a rapid way the condition of labor in France, and have
l what has been done in the way of legislation and by private en-
o add to the security, comfort, and independence of the working
There is no doubt but their condition is much better to-day than
ty or fifty years ago. In the period between 1853 and 1885 the
id to working people show an average increase of 67 per cent. But
ng point in 1853 was very low, notwithstanding the fact that Mr.
in an extract which I have quoted, says some French workmen
uch as $3 or $4 per day. And, in spite of what official statistics
e, I am able to say that in this very large and important industrial
ty the average skilled workman earns less than $400 per year. In
mbers, 1,800 francs is what an expert weaver owning his own loom
Unskilled labor is paid by the municipality 58 cents per day,
no uncommon thing to find scores of skilled laborers out of regular
ent seeking work from town to town at 58 cents per day. How
n support a wife and two or more children when his total earnings,
that he works three hundred days in the year, amounts to $174 per
et this is the task thousands of human beings are called upon to
ally in France.

uncertainty of employment is another distressing feature of the
ndition of things in France. The Frenchman, no matter what his
life may be, is by nature light hearted and disposed to be contented
lot; give him regular employment, and, though the toil may be
the hours long, still he will accept his fate with a large measure of
ess. But when he is buffeted about from one shop to another or
has one hundred days enforced idleness in a year to cope with, he
sullen and disagreeable.

her factor which breeds discontent is the continual outcropping of
of "caste." The "petit bourgeois," or lower middle class, takes
y opportunities to manifest its sense of contempt for the laboring
This manifestation of class bitterness is often unbearably insolent,
can not censure the workingmen for hating a creature who affects to
n, when, as is sometimes the case, everybody knows that in all prob-
ne generation back the family of the *bourgeoisie* were either peasants
ers. Indeed, one of the chief grievances of the French socialists is

that the benefits of the revolution have been reaped by the *bourgeoisie* and not by the laboring class.

The fact that socialism is spreading indicates that the feeling of discontent is growing among the working people. Socialism is not only gaining adherents in labor centers, but it is making itself felt in politics and in the Chamber of Deputies. Even in some centers of learning it is being taken up as a fad, and it is not long since the papers referred to the circumstance of the public distribution of socialist literature by students in some of the Paris universities. It is quite plain that the socialist leaders are exploiting labor for all that it is worth in a political way, and one result of this is to make the workingman feel an increased and perhaps exaggerated sense of his own value as a political unit.

When one considers that in a population of 38,000,000 the number of people engaged in agriculture, commerce, and other industries exceeds 30,000,000, and that there are only about 2,000,000 persons of independent means, it is not difficult to see how the majority may get the impression that they are oppressed by a very small minority.

THE OTHER SIDE.

Opposed to these disquieting and revolutionary tendencies are some calm and stable conservative forces of a material nature. The farmer is very generally assumed to be unfriendly to social agitators, and in France, as he is wedded to the soil, he has little, perhaps, to gain by listening to or embracing the doctrines of the socialists. If the French farmer is as sturdy in his conservatism as he is supposed to be, his influence will be a potent one. The agricultural lands of France are divided into 14,000,000 allotments, and the number of persons engaged in tilling them is 17,698,402, or nearly half the entire population of the country. To the obstacle which the conservative tendencies of the landed peasant proprietor opposes to the advance of socialist ideas may be added, as an additional factor of resistance in the same line, the wonderful solvency of the French people—a solvency which is due to the very general industrial thrift and energy. There are in France more than 7,500,000 depositors in the savings banks alone, their aggregate investments of this sort amounting to more than $700,000,000. These deposits for the most part represent the savings of the lower classes or lower middle and working classes. No effort is spared by the Government to develop this virtue of innate thrift in the French character, and Mr. Stephen says:

> Among many admirable measures adopted to encourage a habit of thrift may especially be mentioned the practice of rewarding efficiency and diligence by crediting the boy or girl with a few francs in a savings bank instead of giving a book or other prize. This is a suggestion that might be followed with good effect in the public schools of the United States.

FRENCH WOMEN.

The influence and place of French women must always be taken into account in any attempt to measure the forces of a social movement. There

aps no other nation where the women take so intelligent and active a
ı business affairs as they do in France. In the small shopkeeping
he women, as a rule, have much better judgment than their husbands,
e the real brains and life of the trade. The wife of a French trades-
rtisan, or farmer is generally his cashier and accountant; she takes
f the savings and invests them; she is much brighter than her husband
good deal more industrious in a very large number of instances, and
es not hesitate to assert herself, particularly if she was the possessor
dot" when she was married.

e influence of the French women of the working classes and the
of their sturdy good sense is at the present moment on the side of
as it exists to-day. The temptation for labor to better its condition
plausible means is strong. Men are working from twelve to sixteen
per day, often seven days in the week. They are badly fed and
edly housed as a rule; their wages are small, work is irregular, and,
, they are despised by the caste and class above them in the social

POPULATION OF FRANCE.

cording to statistics published by the general statistics office, the pop-
ı of France is divided as follows:

	Number.
ture	17,698,402
	9,289,207
rt service	1,020,721
rce	4,247,764
force	613,362
stration	714,027
professions	1,094,233
dent persons	2,295,966
Total	36,973,682
t profession	237,899
ned	490,374
ons not known	231,805
Total	960,078
Grand total	37,933,760

will be observed that agriculture alone absorbs one-half of the classi-
opulation. Industry represents 25 per cent of that population, com-
about 11 per cent, and transport service about 3 per cent. Persons
ependent means represent about 6 per cent of the total population;
, the public force takes up 1 per cent of the total.

e "public force" consists of the military and naval contingents under
g and the armed police and civil police. In this number are also
ised the families of officers, noncommissioned officers, soldiers, and
ı active service.

The population living by agricultural pursuits does no in the department of the Seine, while in the department per cent. The southern and western departments contain than the eastern and northern. On the other hand, it the industrial population is distributed in exactly the reve the agricultural.

WAGES.

It is very difficult to compare the wages in the different all, to strike at the same time a general average comprisin industries of a widely different nature. I shall neverthele the general average of the sixty-two trades of which the s composed, the statistics of which have been obtained fr the chief provincial towns.

As on this point the effect can only be judged at in far apart, present results have been compared with those at which an inquiry was made for the first time.

Table showing daily pay of workmen.

Description.	1853.	1885.	1
With board :	*Francs.*	*Francs.*	*Fran*
Usual wages	0.96	1.60	0.
Maximum	1.23	2.01	.
Minimum	.74	1.29	.
Without board :			
Usual wages	1.89	3.15	1.
Maximum	2.36	3.89	1.
Minimum	1.53	2.63	1.

From the above figures the ordinary wages taken *en b* in thirty-two years by 65.6 per cent, equal to an increase per annum.

The wages of workmen not supplied with board have b nearly double that of workmen so provided. I shall not, this comparison. The rest of the present report will ap the ordinary rates of workmen's wages without board, su stituting the major part of the true working classes. I trades, and very rarely in these of the present day, that th man is boarded by the employer.

As the two sexes present a marked difference under the wages, it is necessary to distinguish one from the other.

Table showing the usual men's wages without board in the provinces.

Trades.	Average daily wages.		Increase.	
	1853.	1885.		
	Francs.	*Francs.*	*Francs.*	*Per cent.*
and goldsmiths	2.74	4.20	1.46	52
	1.73	3.20	1.47	82
	1.90	3.61	1.72	88
	2.20	3.46	1.26	56
kers	1.88	3.09	1.21	63
nen	2.02	3.25	1.23	61
uilders	2.21	3.70	1.49	70
vers	1.83	2.80	.97	54
chers	1.79	3.05	1.26	71
	2.12	3.69	1.57	72
ers	2.20	4.00	1.80	81
ghts	2.06	3.51	1.45	70
miths	2.21	3.57	1.36	61
d sandal makers	1.80	2.73	.93	51
akers	1.76	2.85	1.09	62
ers	1.68	3.05	1.37	80
	1.80	3.17	1.37	74
nd tilers	2.16	4.02	1.86	85
nakers	2.20	3.68	1.48	67
(lamp-makers)	2.04	3.43	1.39	67
iths	2.42	3.96	1.54	60
akers	2.43	4.20	1.77	70
	2.40	3.91	1.51	62
rs	1.78	3.52	1.74	71
	2.07	3.68	1.61	77
	1.94	3.33	1.39	71
	2.02	3.60	1.58	76
ooks	1.97	3.03	1.06	54
ainters	2.20	3.85	1.65	75
sers	1.35	2.82	1.47	110
s	2.25	3.68	1.48	66
ilders	2.27	3.78	1.51	66
	1.95	3.12	1.17	59
ders	1.92	3.00	1.08	56
	2.01	3.69	1.68	83
ters	3.42	5.21	1.79	50
	2.14	3.43	1.29	60
ths	2.16	3.55	1.39	63
	1.96	3.36	1.40	69
s	2.39	4.01	1.62	67
	2.01	3.30	1.29	64
veavers	2.39	4.01	1.62	67
	1.91	3.19	1.28	66
	1.57	2.84	1.27	81
	1.98	3.35	1.37	69
rners	1.94	3.50	1.56	70
rners	2.52	3.93	1.41	55
nakers	1.80	2.97	1.17	61
en	2.00	3.50	1.50	75
	2.06	3.17	1.11	56
eneral average	2.06	3.46	1.40	67

one now considers the increase in wages which has taken place during eriod mentioned, it will be observed that the greatest rise has been among those who receive gratuities from their employers, bakers, wig-makers, etc.

Among trades entirely free such journeymen as maso sawyers, and others have mostly benefited by the rise; added navvies and night men, who, like them, are engaged sanitary improvements.

The rate of women's wages, which was very much less risen in quicker proportion.

Table showing women's wages in the provinces.

Trades.	Average daily wage	
	1853.	1885.
	Francs.	*Franc*
Washerwomen	1.25	1.8
Embroiderers	.98	1.7
Staymakers	.97	1.7
Dressmakers	1.15	1.8
Breeches-makers	1.05	1.8
Lace-makers	1.08	2.1
Flower-makers	1.33	2.1
Waistcoat-makers	.95	1.8
Underlinen-makers	.90	1.6
Milliners	1.12	1.6
Shoe-stitchers	1.00	1.7
General average	1.07	1.8

The first result obtained from the above tables is tha women's wages only exceed by a trifle one-half of those pa nevertheless participate, like men, and in a greater propo eral increase which has taken place during the period from

Lace-makers' wages have doubled in thirty years. A artificial-flower makers and lace-makers earn the highest w of underlinen the lowest; but, altogether, there is little d the different trades, and it is only as heads of departmen that women can earn sufficient remuneration.

Table showing wages paid to Parisian workmen.

Trades.	Average daily wage	
	1853.	1885.
	Francs.	*Franc*
Working jewelers	4.25	7.5
Butchers	4.50	6.0
Bakers	5.00	7.0
Brewers	3.75	5.0
Brickmakers	3.00	4.5
Quarrymen	3.00	5.0
Coach-builders	4.00	6.0
Hatters	4.00	6.0
Coal-heavers	3.00	5.0
Carpenters	5.00	8.

Table showing wages paid to Parisian workmen—Continued.

Trades.	Average daily wages.		Increase.	
	1853.	1885.		
	Francs.	*Francs.*	*Francs.*	*Per cent.*
s	4.00	6.00	2.00	50
hs	4.50	6.00	1.50	45
rs	3.00	4.00	1.00	33
	3.00	3.50	.50	17
	4.00	6.00	2.00	50
tilers	5.00	7.75	2.75	55
ers	3.50	7.75	4.25	121
ers	3.50	5.00	1.50	43
s	5.00	7.00	2.00	40
rs	4.50	6.00	1.50	33
	5.00	6.50	1.50	30
	2.50	3.75	1.25	50
	4.25	8.00	3.75	88
iths	3.65	6.00	2.35	64
	3.50	7.50	4.00	114
ters	4.00	7.50	3.50	75
ers	4.00	7.50	3.50	75
s	2.00	3.00	1.00	50
	4.00	6.00	2.00	50
	3.50	5.00	1.50	43
s	3.50	5.50	2.00	57
	3.50	7.50	4.00	114
rs	4.00	7.00	3.00	75
	4.00	4.50	.50	12
	3.00	5.00	2.00	67
s	5.00	8.50	3.50	70
	3.75	5.00	1.25	33
vers	4.00	5.00	1.00	25
	3.50	4.50	1.00	29
	3.00	3.85	.85	28
	3.00	5.00	2.00	67
	4.25	5.00	.75	18
rs	4.00	5.00	1.00	25
rs	5.00	7.00	2.00	40
ers	3.75	4.50	.75	20
	4.50	5.00	.50	11
	3.75	5.50	1.75	47
ral average	3.81	5.86	2.05	54

Stephen says:

s are, it may be presumed, much higher in Paris than in the provinces, and this dif- explained both by the greater skill required in industries of a luxurious kind of ris has the privilege and by the high rate of rent and the cost of living. There is a nnection between the high price of living and the rate of wages. If this connection d, pauperism increases, and every grade of human activity is affected by this crisis. s the reason why great enterprises are momentarily interrupted; wages are lowered, ion is restricted, and, if production does not follow at the same rate, prices go down risis becomes general.

Paris wages have remained stationary, it is because a great number of workmen ted the capital for want of employment and have gone to work at their respective ewhere. The equilibrium has come about of itself, and the emigration of workmen have ceased.

The general tables of wages show to what extent they v the trades in which the hands are employed. I merely usual average wages paid without board. With respect t trades mentioned in Paris, the first table confirms what h relative to the rise of wages in the capital, but this is its wages only increase in a much less proportion in the provi instead of 66 per cent) and that they even seem to be stat The highest wages, it will be observed, are earned by the st the lowest are paid to the shoemakers and the weavers.

Table showing women's wages in Paris.

Trades.	Average daily wag	
	1853.	1885.
	Francs.	*Franc*
Washerwomen	2.50	4.
Embroiderers	2.00	3.
Staymakers	1.50	2.
Dressmakers	1.75	2.
Breeches-makers	2.50	4.
Lace-makers	2.30	3.
Flower-makers	2.50	3.
Underlinen-makers	1.50	2.
Shoe-stitchers	2.50	3.
General average	2.12	2.

Women's wages are also much higher in Paris than in t accounts for the lessening of the tendency to increase now ceased. There is but little difference between the wages fo ties, but breeches-makers, including leather-breeches mak erers, now earn relatively high wages, while those of stay clothing-makers are very low.

Table showing annual wages of servants boarded in houses where emp

Description.	1853.	1885
Men.		
Personal servants:	*Francs.*	*Franc*
Usual	222	4
Maximum	309	5
Minimum	179	3
House servants:		
Usual	254	4
Maximum	341	5
Minimum	203	3
Women.		
Personal servants:		
Usual	163	3
Maximum	219	3
Minimum	128	2
Cooks:		
Usual	190	3
Maximum	260	4
Minimum	154	2
House servants	244	4

he usual wages paid to male domestic servants have increased in thirty-
ears by 88 per cent, which exceeds the proportional increase in wages
to workmen without board. Women's wages increased during the
interval by 85 per cent.

ith respect to domestic servants in Paris, it was not possible in 1853 to
even approximately the rate of wages, which varied to a great extent
ding to the nature of their service, and especially in respect to the
and caste of the house in which they were employed.

he economical law of supply and demand contributes just as much to
the rate of such wages as it does in other lines of industry.

inally, in considering the foregoing tables of wages, it must be borne
nd that there has been a slight advance in the rate of wages paid in
industries. At the present time there is no general upward tendency
ges, and I have noted in this part of France many reductions; so that,
e whole, the rates presented in the table may be taken as a fair average
e last decade.

STRIKES IN FRANCE.

e Government's printed statistics are always a good deal delayed in
e. The last table at hand relating to strikes covers the years 1888 and
In the former year there were 110 strikes participated in by 24,134
nen. The number of workdays lost was 478,391, and the average dura-
of the strikes was 19.8 days.

he most serious strikes in point of numbers were those of the cotton-
rs and stonecutters.

22 of the 110 strikes the workmen were successful; in 4 cases the
were raised, in 10 a reduction of wages was prevented, and the re-
der of the 22 strikes were for other causes than wages.

24 instances the workmen and their employers were able to effect a
romise, and in 64 strikes the workmen were completely beaten.

1889 there were 321 strikes, in which 66,637 workmen participated.
umber of days of labor lost amounted to more than 1,500,000 in the
gate. There were 140 strikes among the weavers, 16 among dyers, 14
g the miners, 29 among spinners, and 16 among metal-workers. These
the industries in which the greater number of strikes took place.

ut of the 321 strikes, there were 33 in which the workmen obtained
crease of wages, 65 were compromised, and in 166 cases no definite re-
were obtained.

Between the years 1852 and 1890 there were 1,813
distributed as follows:

Year.	Number.	Year.
1852	1	1873
1853	4	1874
1856	3	1875
1857	9	1876
1858	12	1877
1859	10	1878
1860	28	1879
1861	25	1880
1862	24	1882
1863	15	1883
1864	19	1884
1865	15	1885
1866	21	1886
1867	25	1887
1868	26	1888
1869	25	1889
1870	26	
1871	12	Total
1872	7	

Five hundred and thirty-nine of these strikes were an
157 among spinners, 109 among metal-workers, and 88 amc
strikes in the majority of cases were brought about by dema
wages or by refusal to accept lower wages.

Out of the total number of strikes which took place i
resulted favorably for the workmen.

THE SOLUTION.

A senator of France, a man of great penetration, who h
of economic questions for forty-five years, said to me recen

> It is useless to close our eyes to the fact that there is a very conside
> lessness and discontent in the world of "labor." Socialism of a revo
> being preached in every commune. The dangerous ideas are spreadin
> that he is not fairly treated, and after a time lends a willing ear to the d
> sional agitators. The Government gives the workingman his way and
> gently with him for his good or that of society. But I am not discoura
> we shall have social revolution, but a gradual peaceful evolution into a
> factory condition. The most promising solution of the problem before us
> to profit-sharing between employers and employés. Profit-sharing and
> trial enterprises are the two stars of hope in the social horizon.

I have talked with a number of thoughtful workmen
subjects, and I found them much inclined to the same vi
the senator. One of them, however, made this point: H
sharing had been tried in a good many establishments in F
gave good results, but in every case where the workmen a
participation in the profits they are given to understand
reason of the generosity of the employer that they are perm

"We ought," said my workman acquaintance, "to have a right portion of the profits, and not be put in the position of accepting a n we receive our share of them."

statement of the case from the workman's point of view is very sig- , and practically formulates one of the most eagerly looked and hoped lts of social evolution. The intelligent workman sees the beauty and lom of profit-sharing, but he wants his rights in a share of the profits zed, and he expects slow evolution to educate the employer up to nt. For if, as he says, and most of us admit, the three factors which nake a profit are capital, business, and labor, surely labor, from a oint of view, has a right to its proportion of participation, and should compelled to take what it gets as a donation.

he report immediately following this one I set forth in detail many nts in favor of profit-sharing and coöperation, some of which were ed in a report on these subjects made by committees of well-known of France, who are in favor of the proposed law. The report also s the legislation of the principal countries of Europe bearing on the of profit-sharing and coöperation. Particular attention has been the experience of the French Government and French employers levelopment of the coöperation and profit-sharing systems.

FRANCIS B. LOOMIS,
Consul.

TED STATES CONSULATE,
St. Etienne, November 28, 1892.

COÖPERATION AND PROFIT-SHARING.

SUPPLEMENTARY REPORT BY CONSUL LOOMIS, OF ST. ETIENNE.

COÖPERATION.

perative societies, of which the success has been prodigious in the ace of time that has passed since their definite adoption by work- ve already transformed the economical conditions of modern labor. t do they owe their success? Plainly to the fertile and correct e on which they are based, that of self-help, what the French call nce par soi-même" and the Germans "Selbsthülfe." They are, ay, the direct application of the great principle of mutuality, to cess of which the world of to-day renders homage. The time has ne by (1850) since M. Thiers, the eminent French statesman, said rkmen's associations were nothing else than anarchy in the commerce country. The fallacy of that assertion has been proved to-day, as tive societies have received at the hands of political economists a very eception for the last thirty years, who have given them a large place writings. That certain agitators have had the absurd pretension to turn coöperation from its true aim can not be denied, but remained without result. Coöperation, as understood in E ing to do with socialism or communism; has nothing in c doctrines of Saint Simon, Fourier, and other so-called refor species or degree of socialism, it is that bearing the stamp of Social and Political Science. Coöperation is not ever communism or the socialism as understood by some firebra and produces fruit without the intention of working harm to principles of social order.

Such is the opinion of those great political economists Walloski, Horn, Clavel, Charles Robert, Cheysson, Ch others. In short, it is that of all those who have at he coöperation, of those who are at the head of the movemen desire is to break down the antagonism existing between c

Elsewhere in Europe, as in France, all those who are m of revolutionary Utopias than of state socialism consider profit-sharing as the best means of transforming the social citizens. It is thus that most statesmen encourage the co ment, attaching much importance to it.

Mr. Gladstone said:

> I look with great interest on every effort made by the working class and self-protection.

Lord Brougham said:

> I do not believe that there is anything in this country, and, I add, in portant as the coöperative principle.

William Chambers said at Edinburgh:

> I consider coöperation as a new era in social progress. Properly di promoting temperance, frugality, and many other virtues; it will furnish aspect in the condition of the laboring classes. Labor, with its associati a bright future before it; but, like everything else in this world, it must fices.

Lord Stanley said:

> I am rejoiced to believe that if these societies are conducted with directors are chosen, if the shareholders exercise a proper vigilance on th enterprises are avoided, they will extend their operations to every bran will change the moral condition of the workmen.

In 1885 Sir Lloyd Jones expressed himself as follows at congress of Oldham:

> Those who have placed themselves at the head of the movement did poor believe that they should be contented with their lot; quite the contrary to incite their dissatisfaction, not with men, nor with the different classes certain social conditions, with certain commercial habits to which it wa prompt and righteous remedy.

ient men in Belgium, Germany, and France expressed themselves r sense. The testimony of Casimir Perrier is:

> ive associations, as I understand them, impose on the individual his part in the onsibilities only in proportion to the common advantages which they procure for es not abdicate his liberty; it depends on him to increase his personal *bien-être*, es the worth of his labor. His economies belong to himself; he disposes of them and does not place them in the society unless he is satisfied with the advantages e him. Such an arrangement is not only very far from resembling communism, irely opposed to it. Coöperation may be considered the surest and best remedy erils and errors of socialism.

thieu, speaking later on, said:

> erative principle can not be considered as the solution of all the problems or the ll the ills which weaken modern society; but, if it can not eradicate these insepa- our nature, it can modify them in tempering their bitterness and diminishing the eir victims, and that alone would be an immense benefit. Far from being ke some timid hearts, at the movement which pushes democracy to organization, s a step towards progress, as a power and an element of order and stability in a troubled society seeking its equilibrium. To aid this movement is at once a lom, justice, and of sound politics. Nothing in the world is as sacred as labor, w imposed on man and in it he finds his greatness. What would become of the hich man is so proud if it did not produce anything? Association is the lever ses tenfold his power and that of the state which has the wisdom to encourage ent.

; M. de Boyve, in a conference held at Nîmes, said:

> erative system has nothing in common with communism, which is but state most aggravated from. The aim of communism is to convert the community c workshop, from which would be banished all individuality and responsibility; tion of coöperation. This latter encourages production and develops economy, nism paralyzes the one and discourages the other in substituting the action of the of the individual. Coöperation makes men, trusting in themselves; communism en, who remain all their lives in tutelage.
>
> tury has had one or more problems to solve. The present one has to solve nd social questions, but the solutions will not be furnished by revolutionary so- sts, anarchists, or other violent demagogues. Their aim is not to build, but to tred of everything that exists is their principle; negation of the right to possess, s sentiment, of the liberty of man, destruction, and carnage is their programme. alists and coöperators do not desire to throw down, but to build, and they hope fully succeed in resolving many social difficulties. Associations of workmen to material, intellectual, and moral situation is their principle; the right of capital interest in proportion of the risks incurred, an equable division of the profits of etween those who have contributed to realize them, either by intellectual power or by manual effort, liberty of conscience, love, and fraternity is their programme. ors must be the teachers of their fellow-citizens; they must show a spirit of pening the doors of their societies to all, without distinction of class or opinion, erty in supporting patiently contradiction, and a spirit of fraternity in aiding each ly. It is for us to show by our associations that masters and men can work to- pecting each others' rights. But, in order that there may be no misunderstand- to declare that we consider the two worst enemies of our principles to be selfish ters and idle, envious men. We desire social peace; they preach, on the con- red of classes. We look on humanity as one body, of which we are all members;

they want to cut off the principal members, forgetting that they would be the first
The work of social peace followed by coöperators is worthy of drawing to it all
hearts.

Some years later M. Charles Gide, the distinguished professor o
cal economy at Montpellier, made a strikingly suggestive speech, in v
endeavored to draw a distinct line between coöperation and colle
He said:

> We differ from the collectivist party on two important points. The first is that v
> necessity to abolish individual property, even in instruments of production; we desi
> contrary, to be able by association to make the workman the owner of such instrume
> second point wherein we differ from collectivism is that we entertain a certain distr
> state, of the government, of authority, of societies with a capital S, although we a
> intervention of the state as regards the protection of the individual; yet we do n
> much in the efficacy of law in the creation of a new social order. We are a little
> this great collectivist machinery, I must confess, which would draw us into its whe
> of ourselves.

He then indicated the profound error, under which labor a
party of the working classes, which repels coöperation simply becau
eyes, a social revolution would be a surer and more expeditious r
arriving at the desired result. He showed how, after the radic
revolution so much clamored for, the people would not be a bit b
as the old régime would be speedily relapsed to, on account of the i
and inexperience of the revolutionists themselves. Continuing,

> Let us suppose that the social revolution arrives to-morrow. The bloody day i
> has succeeded; the people have triumphed all along the line; all caste of classe
> abolished, as well as individual right of property; the soil, subsoil, manufactories,
> shops, railways, banks, everything in fine, is in the hands of the people. You lie d
> luxurious beds of the rich, and golden dreams rock you to sleep—and what the
> farms, workshops, railways, banks, shops, etc., must be worked; for this immense
> apparatus of production, circulation, and distribution which maintains to-day the
> country and which, if stopped for one day, for even one hour, would kill the social b
> same way as an arrest in the circulation of the blood would suppress life, must
> motion. Do not answer that all that would be effected by degrees; that you v
> your time at it. No. The requirements of life would not grant one single d
> minute. At the very hour you should be ready to take on yourselves the directi
> sponsibility of your own creation, otherwise society would perish, or, rather, it would
> but would, by a supreme effort, throw off the new order of things and return
> system. Those who tell you that the existing condition can be changed in a mome
> both you and themselves; there is only one means for the working classes to train
> to the handling of capital, to commercial practice, to the mechanism of collective e
> and that is to learn to do their business on their own account—that is to say, to o
> operative associations. The principal advantage of coöperation lies in the economica
> of the working classes and the enabling of them to acquire that technical knowled
> which they will never succeed in occupying the place in society to which they asp
> which they have a right.

In closing his speech, M. Gide, forecasting the destinies of coöp
said:

> When I represent to myself the organization of the future society, it appears to
> the aspect of a multitude of associations of every kind and proportion, some imme

> tance, others small, but in all of which the workmen receive the entire product of
> r, because they will possess the instruments of production; associations which sup-
> dlemen, because—and yet without suppressing that emulation indispensable to all
> -they will attenuate competition and strife by suppressing the cause of all conflict.
> n fact, a supply society if it does not signify the suppression of conflict between the
> buyer? What is a loan society? Suppression of conflict between the lender and
> wer. What is a society of production? The suppression of conflict between the
> d the employé. Such is my dream, and I hope it is also yours. I have been fre-
> proached with looking at coöperation in the far perspective and not, as some would
> the near future. The criticism may be merited, but the people must not be lulled
> ic delusions. I believe in coöperation, but it can not be built up nor adopted in a

PROFIT-SHARING.

t-sharing is a system closely allied to coöperation. M. Chaix, the
d printer in Paris, says:

> mixed system between the capitalist and workmen's associations, and deserves to
> aged, for it benefits materially the workman, who will learn to become independent
> vill later on be fitted to form syndicates for which he is not yet sufficiently prepared.

of the proprietors of perhaps the largest plumbing business in France
883:

> sharing is destined to become, in the more or less distant future, the nursery of pro-
> manufacturing coöperative associations.

of the most eminent economists and an authority on profit-sharing,
les Robert, expresses himself thus:

> sharing tends towards coöperative association; it is a régime of transition which,
> volution or spoliation, can make the workmen proprietors of the manufactories.

t-sharing is, from the French point of view, the first step toward
ion. Some large houses, such as that of Leclaire & Godin, have
adopted the system, to the great benefit of all concerned. It was in
t M. Leclaire, a prosperous house-painter, put into practice the prin-
profit-sharing among his employés. After numerous difficulties,
crowned his efforts, and for nearly thirty years he was able to enjoy
nph of his philanthropic idea. He died in 1872 regretted by all his
s, who had for him the greatest esteem and veneration. This house
ce the death of the principal, been turned into a limited stock com-
d worked on the coöperative system. However, every attempt to
the profit-sharing system can not be said to have succeeded, yet the
have furnished valuable instruction.

eat deal was said at the time of the remarkable failure in England of
ing society of Whiwood, near Northampton, managed by Briggs
, but the reasons are well known to-day. The Messrs. Briggs were
in order to satisfy the shareholders, to raise the dividend from 10 to
ent, and for that purpose had to draw on the profits of the capital.
hing could not have taken place if the shareholders had been less
us and less indifferent to social progress. But it must be also ad-

mitted that the influence of the trades unions was not foreign to the rupture between Briggs Brothers and their workmen. However, thanks to the persuasive eloquence of Mr. Sedly Taylor, of Cambridge, of Lord Carnarvon, of the Marquis of Lansdowne, of Miss Hart, and of other champions of coöperation, the discouragement resulting from the above defeat tends to disappear. All French and foreign economists who have propagated by speeches and writings the principle of profit-sharing are agreed on the fact that it has produced the best results in an economical point of view and in that of the improvement of the moral and material condition of the workmen. It was thus that it 1878 Dr. Böhmert, a German scholar, wrote a remarkable book on profit-sharing. After making a personal inquiry, he concluded by declaring that the granting of profits to the employé in contracts was proved to be, in the majority of cases, a beneficial means of improving the method of remuneration of work, as well as the social condition of the interested parties. The book of Dr. Böhmert has had a wide circulation and has been translated into several languages. Besides that of the German savant, other books have been written on the same subject by different authors, among whom may be mentioned Alfred de Courcy, Charles Robert, Prof. von der Goltz, and Rudolf Shultz, in Germany, and John Stuart Mill, Lloyd Jones, Sedly Taylor, and Vansittart-Neal, in England. All the heads of manufactories, engineers, contractors, etc., who have adopted the system of profit-sharing since Leclaire to the present day have been high in their praises of it.

M. Leclaire said:

> I am not a philanthropist; I am a calculator, a man of business. I prefer making 100,000 francs and share half of it with my men than to make 25,000 francs and keep it all for myself. In the first place, my profits are larger, and, moreover, I am on good terms with my employés, knowing that my orders will be obeyed. When an architect asks me to paint the buildings of some universal exposition or of some city hall, where hours and minutes are of importance, I feel happy when giving the order, knowing that it will be promptly executed; the architect knows that, too, and consequently my business prospers.

M. Gaste, lithographer, at Paris, gives similar testimony:

> I have the appearance of being a generous man, but that is not the case. I have found by experience that by giving 33 per cent of the profits to the provident fund of the employés I will have no strikes and can secure good workmen, which means an economy of both time and material.

He told humorously how, before adopting this principle, the lithographic stones were always getting smashed, but now such an accident was extremely rare.

Another lithographer says:

> Profit-sharing has rendered me the service of bringing around me a certain number of employés and workmen more desirous than formerly to do good work. The most affectionate and confidential terms exist between us, and I feel sustained in the worry of business by their cordial attitude towards me.

A parliamentary committee, sitting between the years 1883 and 1888, invited the testimony of those large employers who conducted their business ɔrofit-sharing system, some of which were particularly interesting. non said:

> haring presents important advantages; it develops the most essential industrial f the workman—ability, constancy, and devotion; it is a source of profit to the men, to the employer; it suppresses strikes, and leads to coöperation. As long as I l endeavor to propagate profit-sharing, convinced as I am that it is not only benefi· ividuals, but to the country at large.

Charles Tulen expressed himself thus:

> sults obtained in our house (type foundry) by the profit-sharing system consist in the good understanding existing between the master and the men and a recipro· dence, to which we attach great importance. Not only have we the best workmen, latter, feeling that they have an interest in the business, are much more diligent. unknown and impossible in our house. There is a considerable advantage in to sleep quietly, knowing that the men can be trusted.

e Naeyer (Lille) said that profit-sharing stimulates and interests the workman in the business itself; that his work, activity, and s influenced by it; that he works not only for his salary, but for a in the future; and that it stimulates his hopes to become better off

erdinand de Lesseps, who adopted the principle of profit-sharing in truction of the Suez Canal, was of the same opinion. He said:

> ve to congratulate ourselves on the system. Our employés form a family. * * * espect profit-sharing has proved to us its utility.

COÖPERATIVE SOCIETIES AND THE PROFIT-SHARING SYSTEM.

s in France, immediately after the revolution of 1848, that the co- movement originated. The enthusiasm was great at the com- ent, but it was soon discovered that practical coöperation encountered e difficulties—insufficiency of credit and insufficiency of work. It that the National Assembly, on the proposition of one of its depu- ned a credit of 3,000,000 francs to be divided (as a loan) among the ive societies. The decree of July 5, 1848, instituted at the same council of encouragement, the functions of which were to supervise er distribution of the loan. Ten days later another decree author- minister of public works to intrust certain Government contracts to kmen's societies. The report prepared on the subject and read by ne members before the Assembly said:

> the present it has been impossible for coöperative societies to contract for public the rules of the administration concerning these contracts demand large securities, ayments, and a consistency between the diverse nature of work on the same contract, was absolutely necessary to employ the ordinary contractor.
>
> ossible to suppress the middlemen between the State and the laborer? The work ate, can it be divided according to the nature of the task, and can the new method ion be substituted for the regular contractors without injuring the proper surveillance rks?

It appeared to your committee that in the greater number of cases the could be suppressed and partial contracts given to the coöperative assoc new field would be opened to the laborers.

These two decrees acted as an effective stimulant to the coö ment, and yet they did not give the results expected from very outset the demands for work poured in upon the Gove avalanche. In six months the requests for contracts reache and eighty, exceeding the sum total of 27,000,000 francs. sible to satisfy more than forty-nine of these claimants, and, appointment and discontent followed. Certain societies, ho a relative prosperity as long as the Republic lasted; but 1850 gave them their deathblow.

By the decrees of the 25th of March, 1852, all the work were abolished, certain leaders were prosecuted and fined, wh sent into exile. During fifteen years of the Empire the ques ative societies lay dormant. The Government, as well as t were strictly opposed to them. It was not until 1867 that idea was a little revived. The law on societies (or, as we s of July 24, 1867, in giving the title III to societies of varia couraged somewhat the partisans of coöperation, although th ties favored by the law were anonymous commercial associ stock companies; and such was the great distrust of the Gove words "coöperative societies" were not to be found in the The situation did not change during the last years of the I first of the Republic. It was only in 1879, when the Repub to exist not only in name, but in reality, that the coöperat favor with the authorities.

The Exposition of 1878 had prepared the movement, a ministers of public works—MM. de Freycinet and Carnot— help the work by a series of measures which were of undoubt It was thus that they proposed to the council of state to incr tages granted to the workmen's associations by the decree of they asked that the maximum of bids for a certain number of carpentry, locksmiths' works, roofing, paving, etc.—should 10,000 francs to 50,000 francs. The proposition, unfortu accepted, for on the 18th of January, 1882, the council of s solution of the question until after the vote of a new law or ciations.

In the meanwhile, however, certain members of Parliame cause of the workmen. On the 15th of March, 1879, M. I proposed in the Chamber of Deputies a bill "having for its ulation and development of the coöperative system." It following articles:

(1) In the case of contracts by sealed proposals for work for the State, the communes, either for works to be accomplished or for supplies, no pri

pany can be given the contract unless they bind themselves in their proposal to grant n the profits to their employés.

A regulation of the public administration will determine the method of coöperation quantum of the profit-sharing that the contractors shall grant, which may vary ac- to the nature of the contract.

the 7th of December, 1880, M. de Lacretelle presented a bill giving sion to the laboring associations to bid for and execute important orks. The only article of this bill was as follows:

nd after the passing of the present bill, workmen's associations will be admitted to for all Government contracts, no matter how important may be the sum involved.

e bill was not read a second time.

een months later (March 16, 1882) M. Ballue, along with several of eagues, framed a bill with the object of admitting to a share in the all those employed on State contracts, and was thus conceived:

ICLE 1. On and after the passing of the present bill every contract given by the State, a private person or to a society, shall imply a share in the profits to all the employés e condition named in the estimates.

2. Every contract granted by the State shall include a clause stating the share indi- the above article, the conditions to be submitted to the approbation of the Chambers.

3. Every contract granted by the departments or the communes shall contain the pulations as mentioned in article 1.

ten days afterwards M. Laroche-Joubert brought forward for the sec- me his bill of 1879, and the Chamber of Deputies examined at the ime that of M. Ballue.

1881 M. Floquet, who was then prefect of the Seine (Paris), did better ll that. Thinking rightly that deeds were better than words, he re- as regards his administration, the decree of 1848. He confided to a ttee named by himself the work of drawing up a new model of esti- for the public works of the city of Paris, so as to favor the workmen's es and those contractors whose employés were given a share in the The committee set to work immediately and adopted a series of ions modifying the estimates of the city works.

h was the situation when an event occurred which advanced greatly ea and system of coöperation and of profit-sharing. On the 20th of , 1883, M. Waldeck-Rousseau, minister of the interior, instituted an arliamentary committee in order to study the means of facilitating mission of workmen's societies to the contracts and tenders of the vorks and examine to what extent it would be possible to obtain from ctors a share in the profits for their employés.

h was the first article of the project; the second determined the com- n of the committee, which comprised the minister of the interior as ent and the directors and high personages of the ministerial depart- The first meeting of the committee took place on the 13th of April as presided over by M. Waldeck-Rousseau, who made a remarkable . He began by refuting the criticisms of the journals which attacked nisterial order instituting the committee of inquiry, some reproaching

its inadequacy as regards the solution of the social question, others i
sive boldness. He said:

> I wish to declare that we have not the pretension to believe that our social con
> be transformed by the magic of a word or a name. A society is not transformed; i
> modified gradually, slowly. Men can not be treated like old coin, which is pu
> crucible, remelted, and struck with another effigy; in a word, I do not believe
> alchemy. I believe, on the contrary, that there exists a social science, consisting
> means by which the relations between the interests of different parties can be imp
> is doubtless an easy task for certain persons to go from one meeting to another, infl
> asperating, and preaching a new gospel of which they have not written one line;
> not seen that those people, if it be true that they are the apostles of a new doctrin
> method, have ever made known the secret.
>
> These socialistic campaigns lead to deception rather than to a solution of the
> With less ambition we hope to arrive at more certain and more lasting results. A
> is a work of education, of adaptation to needs of new circumstances, and the Gover
> consequently, in a work of this nature, a certain rôle to play. This does not mean
> impose solutions or usurp the function and initiative of members of the Parliamen
> govern, if I understand rightly the word, is not only to insure the security of all th
> it is above all to instruct, educate, and cherish every idea, in order to bring the
> repeated efforts, to realize a continual progress. In this way I do not think I an
> in saying that a government does not adopt a state socialism when, surrounded by e
> men capable of protecting the interests of the state, it seeks by what means it can t
> labor question into a road perhaps more satisfactory than that it had hitherto follow

M. Waldeck-Rousseau observed again:

> The natural tendency of all work is toward a better remuneration, and, in s
> difficulties arising from foreign competition, it is prudent and wise, instead of oppo
> ers to this movement, to open up new roads. The progressive and pacific solu
> labor question consists in training the workmen to ask for the remuneration of thei
> little as possible from wages and as much as possible from associations; but to an
> trades should unite and concentrate force which would remain powerless when is
> which would be wonderfully fruitful if combined.
>
> In order to pave the way for such a considerable evolution, the social educatio
> must be made after the primary education of the citizens has been effected. But th
> was, are syndicates between workmen legal and practical?

After having passed in review the legislation on the question, M.
Rousseau recognized that the law of 1867 had been conceived in
spirit of mistrust in the idea of workmen's associations and contai
tain useless clauses which could only paralyze its development.

As to the question of profit-sharing, the minister thought that
commencement at least those societies formed in view of a special e
should first be established, and when that undertaking had succe
profit-sharing society could enlarge its borders and become the cra
new association—stronger, more ambitious, and more lasting.

In concluding this important speech, M. Waldeck-Rousseau e
in detail the profits which employers might grant to their workm
said:

> It appears to me to be desirable that the largest number possible of manufactur
> be induced to give their employés an interest in the profits. Given a contracto

> n association on the profit-sharing system; is it not quite legitimate for the State to
> ge such a work of which the consequences may be so profitable to society? Can not
> vor to prove that certain theories, treated hitherto as impossible to realize, can be to-
> into practice? State help in such a case can be justified by the fact that, in treating
> ontractor who grants to his workmen a share in the profits, the proper execution of
> will be insured, and thus many difficulties and deceptions will be avoided.

the close of this speech the committee divided itself into two sections,
ch one was to study the modifications that could be effected in the
1867 and the other to receive the delegates of the coöperative societies
heads of firms who give a share in the profits to their employés.

the second meeting a subcommittee was formed to draw up a series of
ns, which were adopted in a general meeting held a few days subse-
y.

hteen sessions were devoted to the hearing and examining of the dele-
f the societies, and all their depositions were carefully noted down
nted in three large volumes, after which M. Waldeck-Rousseau made
long speech, defining to what extent legislation could be brought to
the work of the committee. Thirty-five meetings were held up to
of May, and the final results were as follows:

A decree relative to the participation of workmen's societies in State
ts.

A bill asking for the creation of a general provident society.

A bill on coöperative and profit-sharing companies.

decree was immediately approved of by the Government; the bill
g a general provident society was voted by the Chamber and is now
g ratification by the Senate, while that on coöperative and profit-
societies was introduced by M. Floquet, the then minister of the in-
on the 16th of July, 1888, in the Chamber of Deputies after it had
xamined by a parliamentary committee. His scheme consisted of
ive articles under five distinct heads—(1) general dispositions of the
) societies with varying capital, (3) societies with fixed capital, (4)
r of trusts, and (5) profit-sharing.

econd committee was immediately appointed by the Chamber, which,
careful study of the whole scheme, adopted it almost in its integrity,
only another clause, that treating of coöperative societies of supply.
ll was voted by the Chamber on both readings, and nine months
rds it was carried to the Senate, which, in its turn, named another
ttee, and after a patient inquiry drew up a more complete scheme,
still another heading, that of loan societies. It appeared to the
ttee rational to comprise in the same legislation the three great orders
eration—supply, credit, and production—to which can be added all
es of coöperative associations, such as coöperative societies for the pur-
nd sale of cheap houses, those for the purchase of raw material, and,
associations for the purchase and the common use of machinery. A
clause was added for coöperation in the construction of laborers'
s.

Such were the long stages through which this bill has struggled. It will probably be passed by the Senate in the session of 1893.

DEVELOPMENT OF COÖPERATION AND PROFIT-SHARING.

The foregoing remarks would be incomplete if I did not pass in review the practical results following the application of the coöperative principles in France and abroad. This principle may be divided into three distinct applications, which are as follows: Coöperative association for supplies, which permits the coöperator to procure for the wants of his family the best food at low prices; loan societies, the design of which is to lend to short purses a certain amount of capital on the most favorable conditions possible; societies of production, which permit the workman to increase his daily salary by a part of the profits which habitually belonged to the employer.

As to profit-sharing, the best definition, perhaps, is given by M. Charles Robert:

> It is an agreement, express or tacit, by which the employer gives to his workman, in addition to his regular salary, a share in the profits, irrespective of losses.

Almost unknown fifty years ago, coöperative societies occupy at the present moment an important position in European countries and in the New World, as will be seen.

FRANCE.

The first societies of supply in this country date from 1848. In 1851 there were 38, but with the advent of the Empire they were dissolved. At the present time the number has increased to 1,100, with 600,000 members. In Paris, until quite recently, coöperative societies were less successful than in the provinces; however, to-day several are very prosperous, the business transacted being considerable. The most flourishing of those in the departments is that of the mines of Anzin, founded in 1865; in 1889 the sales amounted to over 38,000,000 francs, of which more than 500,000 francs were divided among the shareholders. Lately all the French societies formed a federation, with M. Clavel as president and M. Charles Robert as secretary.

The societies of production are not numerous. In Paris there are about 40, with perhaps double that number in the provinces.

As to the loan societies, in spite of strenuous efforts made in that direction, only 18 exist, of which the principal are those of Paris, Angers, Mentone, and St. Chamond (Loire). There exists only one coöperative building society, that of Marseilles, to which the name "Pierre du foyer" (hearthstone) is given.

ENGLAND.

It may be said that in England there exist but three classes of coöperative societies—societies of production, supply associations, and building

The loan societies are not, properly speaking, coöperative, and
minishing in number.

cieties of production, which obtain for the workman all the
is work, are 106 in number, with 27,528 members, and a paid-up
£714,189, and £274,784 deposited.

uld be justified in saying that the English working class has had
f object the solution of the problem of coöperation in supplies.
the year 1777 a coöperative workshop was opened in Birming-
in a few years afterwards another at Wengive by the bishop of
But the movement did not distinctly take hold of the classes
, when the Rochdale Pioneers was founded. This society pro-
idly, owing to the active collaboration of Kingsley, Vansittart-
Stuart Mill, and others. The society was founded by a few work-
work, who had only a very limited capital to commence with. In
ciety reckoned 10,613 members and possessed a capital in shares
70; in 1889 the net profits exceeded £49,750. To-day this
sesses twenty coöperative stores in the town of Rochdale alone.

al number of supply stores was, according to last statistics, 1,516,
,170 were in England and Wales, 334 in Scotland, and 12 in
The number of members was 967,828. The capital in shares was
15, and £2,263,576 were deposited. The business transacted
7 figured for the sum of £34,483,771, and the value of goods in
£43,600,856, giving a profit equal to £3 8*s.* to each member.
e coöperatives created by shares the wholesale coöperative society,
he headquarters are at Manchester. This society made rapid
created a transport service between England and France and an
company for its buildings, its ships, and its goods. It possesses
ies of soap, boots, biscuits, etc. On the 31st of December, 1888,
embership of 634,196.

ear the delegates of the different coöperative societies hold a con-
according to the balance sheet made out in 1890, the situation
ws: Societies belonging to the union, 1,621; number of mem-
,724; capital and deposits, £14,691,792; reserve fund, £614,-
s for education, £25,947; value of buildings, £5,940,712; net
,792,020.

o there were 1,940 building societies in England, comprising
embers. The receipts for that year rose to £19,000,000, and
nt on mortgage £52,000,000, giving a total of £71,000,000.

GERMANY.

t report, published in 1890, on coöperative societies throughout
n Empire gives a total of 5,950, classified thus: Loan societies,
ustrial societies, 2,714; supply societies, 760; building societies, 28.
be seen, the banks are the most numerous. They are worked
he principle of Schulze-Delitsch, which makes the members capi-

talists receiving dividends, or that of Raiffeisen, which rejects all appearance of profits, even to the administration of the bank, which in most of the cases is done gratuitously. The sums advanced during the year 1888 by 900 of these loan societies amounted to 1,591,569,312 marks; the average sum lent to each member was 3,449 marks, and the share in the profits granted to each was 239.50 marks; the rolling capital gave an interest of 5.38 per cent; the expenses were 6,083,790 marks and the losses 830,427 marks, but these were always made good without touching the capital. The net profits were 8,717,067 marks, of which 6,580,396 marks were divided among the shareholders and 1,805,275 marks placed in the reserve fund.

The industrial coöperative societies are classed as follows: Societies for the purchase of raw material for different trades (shoemakers, tailors, carpenters, wheelwrights, locksmiths, blacksmiths, weavers, tanners, etc.), 113; societies for the purchase of everything appertaining to agriculture, 843; societies of butchers, 9; coöperative stores, 59; coöperative manufactories, 138; for agricultural produce (milk, cheese, fruits, etc.), 689.

There are very few building societies in Germany, and therefore much can not be said of them.

ITALY.

Coöperative institutions are making progress in Italy. The loan societies are very flourishing. From 250 in 1883 they rose to 662 in 1888, and the social capital was 110,000,000 lire. The coöperative stores are nearly as important, while the societies of production—dairymen, masons, carpenters, tailors, shoemakers, etc.—number about 500.

SWITZERLAND.

In Switzerland coöperative societies have taken a firm hold on the population. Those of supplies number 138, and their net profits exceed 4,000,000 francs. The most important are those of Zurich and Geneva. The loan banks are 60 in number and give a dividend of 5 per cent—a small interest, it must be confessed, but it will be remembered that these banks are not got up as a speculation, but to lend to those who are in need of a small capital and which it would be difficult for them to find elsewhere.

BELGIUM.

Coöperative societies are fairly numerous in Belgium. That of Liege pays a dividend of from 10 to 30 per cent; in five years the capital produced 105 per cent. These societies have various destinations—lending money, furnishing guaranties, buying or constructing dwellings, coöperative chemists' shops, etc.

RECAPITULATION.

Profit-sharing is a French idea. It was in 1842 that Leclaire invented the system, and his example was followed by several other houses; but it was not until 1864 that the principle was seriously studied and put into practice. Since the year 1872 sixty-eight large business firms adopted it, eral years the system has become international. The following list number of profit-sharing establishments in the different countries:

Countries.	Number.	Countries.	Number.
	92	Portugal	1
	3	Spain	1
	4	England	62
	4	Denmark	4
	16	Holland	5
	26	Russia	1
	5	Total	255
	35		

FRENCH AND FOREIGN LEGISLATION.

ferent laws which control coöperative societies have exercised, as pected, a greater or less influence on the development of coöpera- t has seemed to me that a glance at these would be interesting.

ENGLISH LEGISLATION.

glish coöperative societies are controlled by the law of 1876 (in- d provident societies act). The dispositions of this act give choice between that of companies or that of industrial and provi- ies.

st have a limited or unlimited responsibility, and in the former embers are only responsible for the amount of their shares. This been adopted by all the coöperative supply associations. The st be composed of at least 17 members, and the statutes must ed with the registrar, who delivers a certificate of registration. l is composed of shares, of which the number may be limited. The the shareholders and the number of shares which each possesses corded in a special registry kept at the office of the society and who wish to consult it. Every year a list of all the shareholders, th the statement of the capital, must be deposited with the registrar. are examined by an accountant named by the home minister l for by a third or a fifth of the members, according to the nature ety. Ex-members are responsible for one year after they have left .

ws touching the industrial and provident societies have a great th that of the friendly societies. They are placed under the con- gularly appointed registrar, and, in fact, are treated in this respect the trades unions, building societies, and loan societies. The an suspend a society for three months and renew the suspension if he can also annul, in certain cases, a society with the approba- treasury. The statutes of the association must specify the name ety, indicate that it is limited, fix the mode of admission and exit es, and everything that concerns the capital, the dividends, the administration, liquidation, or dissolution of the society. Industrial and provident societies are exempted from income tax and stamp duties.

GERMAN LEGISLATION.

The German legislation concerning coöperative societies is derived from the law of 1889. Up to 1867 the societies formed in Prussia, needing a large credit on account of the doubtful success of the innovation, adopted the system of unlimited responsibility on the part of the members; the creditors could proceed against them individually or collectively. But the Saxon law of 1868 allowed the creation of limited-liability coöperative societies, and that wise principle was recognized by the law of 1889 of the German Empire. The second article of this law defines thus the liability of the associates:

(1) Each of the members is liable on all his goods, not directly to the creditors of the society, but to the society itself, and is obliged to furnish to the bank of the society the sum necessary to pay its debts.

(2) Each member is responsible to the society and to the creditors of the society (unlimited company) for all his goods and property.

(3) The liability of each of the associates is limited both towards the society and the creditors.

Such are the three classes which the law recognizes.

Articles 6, 7, and 8 declare that lending societies can not furnish funds to nonmembers. The administration and control of the associations are also specified by the new law, which in article 51 provides for the annual inspection of the business of each society by an auditor chosen by a certain number of the societies assembled in congress; but this auditor must not be a member of any coöperative society, and his name must be submitted to the approval of the State. Each society must be composed of at least 17 members and a tenth of the shares be paid in before the society is registered. Any member can withdraw on giving three months' notice and can claim his part in the profits of the society, according to the latest inventory. He has, however, no claim on the reserve fund. His liability continues two years.

BELGIUM'S LAWS.

The Belgian law (1873) does not give a special definition of coöperative societies. It simply says that they are composed of members, of which the number may vary, as well as that of the shares, and that the privileges are inaccessible to outsiders. By this latter provision the transformation of coöperative societies into anonymous companies is rendered impossible, and consequently speculation is avoided. However, if a member withdraws from a society, he can give up his share to a third party, provided that he be admitted as a member of the association.

The lowest number of members is fixed at 7, and the administration of the society may be conducted by nonmembers if thought fit. This is an important matter, as many intelligent men devoted to the coöperative cause can be chosen outside the society. Articles 87, 88, and 89 treat of the folɔints: (1) Name of the society; (2) its headquarters; (3) its object; ımes and addresses of members, with the number of their shares; tions of admission or withdrawal of members; (6) mode of adminınd control of the operations of the society; (7) privileges of mem- allotment of profits and losses.

nnual publication of the inventory and balance sheet, abatements, nd, and list of members, with the amount of their shares, is rendered ,. The amount of capital is not fixed by the law, nor is there any ed on the number of shares of each member. If a member with- s liability remains in force six years.

Belgian law is considered both prudent and liberal, and for that ōperative societies have done well in that country.

ITALIAN LAWS.

talian code on coöperation is somewhat similar to that of Belgium. the amount of shares that each member can possess is fixed at , as in the English law; and, if the capital is divided into shares, hem can exceed 100 lire. A general assembly of the members must ach year. Each member has only one vote and can represent but ıt member. Every three months the directors of the association l to the clerk of the court a statement showing the number of new ithdrawals, and the total number of existing associates. The disɔf the society may take place when the capital has diminished by s, unless the members, convoked to a general assembly, decide to ary.

SWISS LAW.

erative societies in Switzerland have almost all adopted the form under the name of "association" contained in the federal code of he name of coöperative society does not appear in the code.

rm an association, a deed must be signed by seven persons at least registered. The Swiss law does not limit the amount of capital umber of members, and leaves the admission or withdrawal of memɔnal to the parties interested. The liability of the members does d the assets of the association, and in any case can not extend be- years for any member who resigns. A balance sheet must be pubery year, and the court advised when the assets are not equal to the . The dissolution of the society can take place at the request of or of any member, creditor, or other competent authority. After of the liabilities the remaining assets, if any, are divided among s.

ACTUAL AND PROPOSED LEGISLATION IN FRANCE.

the present time coöperative societies were governed by the law which did not intend to create a new and particular form of society, odify in certain points the ordinary regulations applied to societies y shares. The capital was divided into shares of 50 francs each, instead of 100 or 150 francs as in other societies; and the tenth part only, instead of the fourth, is required to be paid up before the society can be registered. The initial capital was limited to 200,000 francs and the possible annual increase to a similar amount.

Such were the main features of the law. It contained nothing relative to the entry or exit of members. On the other hand, the societies were obliged to conform to the obligations exacted of anonymous societies—publications of the statutes in the daily press, registration at the office of the clerk of the court, taxes, stamp duties, and other fiscal exactions—which discouraged the coöperative enterprise. Consequently it can not be wondered at that, while the coöperative movement progressed rapidly in other countries, it was retarded in France by defective legislation and especially as concerned coöperative supply associations.

The present legislation, in specifying sufficiently the character of societies of this nature, exposes them to all sorts of difficulties, sometimes even to ruinous procedures with the financial administration of the State, and yet gives them no definite legal status. It is for this reason that a certain number of coöperative associations have adopted the anonymous forms, for, if French jurisdiction admits that a society can assume one of the commercial forms, it exacts the fulfilling in each case of all the prescriptions of the law of 1867, which constitutes an expense to the society of at least 400 francs; besides this, they have to pay stamp duties, a tax on the revenue of each share, wine and liquor licenses, and those on wholesale and retail.

Article 49 of the law of 1867 limits the initial capital to 200,000 francs and allows an annual increase of a similar sum; but this legal maximum is not sufficient for certain coöperative societies, such as building associations.

Societies of production labor under the same difficulties, and in their defense I could not do better than cite the admirable opening speech of M. Waldeck-Rousseau at the extraparliamentary committee of inquiry when referring to the spirit of mistrust which characterized the law of 1867. He said:

> That is a sentiment I can not approve. I am convinced, on the contrary, that citizens who do not ask from their labor but the improvement of their condition are not those who should be feared if they acquire a higher notoriety or a better material position; each time that a man rises one step by honest effort on the social ladder he becomes a better and a more useful member of society. Now, the law of 1867, in which the insertion of the words "coöperative associations" was left out by design, contains certain provisions which, to say the least, are vexatious and discouraging to the very principle of coöperation. It is not surprising, then, that the workmen did not readily enter the door opened for them.

In concluding, the speaker said:

> I have taken the liberty to point out to the committee that the fears of the legislators of 1867 were unfounded. Honest, hard-working men have no idea of speculating on their shares; for their societies are not created for the purpose of financial transactions, but to improve by their economies their social condition.

The committee took the view of their president, and drew up a report recommending the abolition of the objections referred to. By the same e the advantages of profit-sharing were recognized. Although ccupies the first rank among the nations which practice this system, o doubt that the development of the principle would be more rapid legal obstacles were removed. The most serious hindrance to the of profit-sharing is that relative to the control of the accounts. ms would readily adopt the system if they did not fear a meddling mployés with the books, and on this point legislation is manifestly .

harles Robert declared before the committee that this dread was heads of houses who otherwise give their support to the movement. dered that the future of the system was seriously compromised as legal arrangement was not concluded whereby all interference with nts was prohibited to the employés. If at the time of taking the interested persons other than the shareholders were allowed to in- the business of the firm, the vital principle would suffer, industry ceive its deathblow, and the most passionate partisans of profit- ould immediately turn against it.

e law as it stands gives the right, in case of disagreement, to the to verify the books of the firm. The necessity of renouncing this control on the part of the profit-sharing employés becomes void head of the firm tells his workmen that he will give them so much e profits each year, for in that case the act is simply one of gener- assumes the character of a free gift.

ol of the accounts could only have its *raison d'être* where a fixed e was agreed on beforehand.

resident of the Chamber of Deputies, M. Floquet, in treating this ect in his bill on coöperative societies, said that a clause forbidding ol of the books to profit-sharing employés would be quite legiti- at the contract necessarily supposes confidence in the head of the verification of the accounts by the interested parties would not be to protect their rights if they had to do with an employer of bad would it protect them against recklessness on the part of the firm. ers are of the same opinion, and all are agreed that the clause by ofit-sharing employés renounce any attempt to interfere with the ould receive legal sanction, so that there should be no misunder- about it.

ps the method followed in England by the firm of Fox, Head & dlesborough, by which a public accountant is chosen on both sides e that the inventory has been properly made out, is the best. Al- firm in France, that of Goffinon & Co., has adopted this system, s worked well.

e giving the text of the new bill which will be discussed during the f 1893 in the Senate, it may be well to say a word on the protests ve been made against any legislation in favor of coöperative socie- arisian merchants and above all by the keepers of small shops, who feel their position threatened in a certain measure by the competition of these societies. They pretend that they will be seriously damaged in their commerce, because they will not be able to compete with organized associations enjoying privileges denied to them. They are subjected to all kinds of taxes and licenses, from which coöperative societies are to be relieved. These facts are in a measure true and are worthy of the attention of the legislator, but there are other interests of a much higher order, namely, those of associations whose aim is to procure to the laboring classes and those of small means and large families a notable decrease in the cost of the necessaries of life, to guaranty them the quality as well as the quantity, to familiarize them with the saving principle, to teach them how to manage their own affairs, and to raise them both in their own eyes and those of the world.

The following is the text of the bill:

ARTICLE 1. Coöperation is an association of persons participating in a common work, in order to obtain, under the best conditions, the necessaries of life, to realize economy, or to obtain the best possible profit from their resources or labor.

ART. 2. Coöperative societies are either private or commercial, according to their method of working.

ART. 3. They can not be composed of less than 7 persons.

ART. 4. They can be formed by private deed, properly dated and made out in duplicate. A notary deed is optional.

ART. 5. Every coöperative society must be registered, as well as its statutes and deeds.

ART. 6. The initial capital will be determined by the statutes of the society; it can be increased by the addition of new members or by increased payments of the associates. The shares can not be under 20 francs nor over 100 francs. The part that each member can have in the society can not exceed 5,000 francs.

ART. 7. No coöperative society can be definitely established before the registration of the deed and the payment of the tenth part at least of each share. A declaration signed by the founders of the association to this effect must be filed at the first general assembly of the shareholders.

ART. 8. The first general assembly must be composed of at least half of the members, and half of the capital must be represented.

ART. 9. In the first meeting the administrators are chosen; they may be paid or unpaid, but they must belong to the society, and can be revoked. A director is elected from among the administrators, who must be a Frenchman and in full possession of all his civil and political rights. The inventory will take place at least once a year at a date fixed in the statutes.

ART. 10. The administrators and the director are only responsible for the proper execution of the trust confided to them; they contract no personal obligation during the period of their administration.

ART. 11. The capital may be diminished by reason of the withdrawal, exclusion, or decease of one or several members or for any other cause. When the capital shall have decreased by one-half, the society will be dissolved, unless, however, a general assembly convoked by the chairman decides otherwise.

ART. 12. Each year a general assembly must be held, in which the books are produced and the balance sheet read and submitted to the approval of the meeting.

* * * * * * *

ART. 14. If a general meeting finds itself outside the conditions determined in the statutes, a second will be convoked fifteen days later; and in this assembly any deliberation will be legal, irrespective of the number of members present.

5. When a general assembly has to deliberate on a proposed modification of the
on the dissolution of the society, each member must be notified a fortnight in ad-
n of the day and the hour of the meeting and of the nature of the convocation.
of the members at least must be present and one-half of the capital represented;
where the society counts more than 4,000 members, one-fifth of the capital and
f the members will constitute a legal assembly.

6. Each member has only one vote, and can not represent more than one absent
A roll will be called at the commencement of each meeting.

7. The necessary deeds for the constitution or dissolution of a coöperative society
t from stamp duties and registration tax.

8. Coöperative societies are not dissolved by the death, withdrawal, or bankruptcy
several members; they may be continued among the other associates.

* * * * * *

o. In every coöperative society the general assembly convoked for the purpose has
o decide by a majority of three-fourths of the voters present on the exclusion of
e of its members. The share of the excluded member is returned to him after
is made of that portion destined to the reserve fund.

1. Every year the tenth part of the net profits of the society, and before declaring
, is to be contributed to the reserve fund; yet where this fund exceeds the fifth
social capital, this injunction ceases to be obligatory.

2. Any member can withdraw under the conditions prescribed by the statutes.

3. Coöperative societies are not allowed to profit by the dispositions of the present
t on the condition that no more than 5 per cent be asked on the capital as remu-

4. Coöperative societies can be represented before the courts by the director or a
the council, unless the statutes may have disposed otherwise.

5. Coöperative societies with a variable capital may profit by the present law on
on that they fulfill all the requirements.

6. Coöperative societies that have been legally constituted can form among them-
ions" for the study of their interests and the purchase and sale of different arti-
good of the society; these unions must declare, at the town hall, the names and
of the members, their statutes, and the office of the union.

Relative to supply associations or stores.

7. The deposits prescribed in article 5 must be effected by coöperative supply so-
e office of the clerk of the court. In order to constitute the society the following
t be put in: A copy of the act of the society, a declaration similar to that con-
rticle 7, and a declaration signed by the administrators of the general assembly to
hat the prescriptions of the same article have been obeyed.

8. Supply associations can admit adherents to the distribution of the objects pur-
the payment of an entry fee fixed by the statutes. The adherent can take no part
ministration or direction of the society, nor can he vote in the assemblies. The
put down to his account, to which is added annually his part in the bonus. As
amount of his account reaches that of a share, he will take his place among the
f the society.

9. Supply associations which sell exclusively to their members and adherents and
bonus between all the clients according to the amount expended by each maintain
cter of civil societies and pay no tax on the revenue, nor do they require any
ses, but they must provide themselves with a wholesale and retail license.

Loan societies.

o. Coöperative loan societies must fulfill the conditions prescribed in article 5.

1. These societies can only be composed of members.

ART. 32. The loan societies which alone are admitted to benefit by the present law are those which effect discounting, advances, or deposits with their associates.

ART. 33. Loan societies are allowed to make advances of money to their members, and only to them, for a period not less than one year and at a rate not exceeding 3 per cent.

Building societies.

ART. 34. Coöperative societies for the construction of workmen's houses have for their aim in view the rendering of their members proprietors of the habitation, either by lending on mortgage a sum of money to effect or complete the purchase or by building the dwelling and selling it by annuities.

ART. 35. They are subjected to all the formalities of the supply and loan societies.

ART. 36. The loans or sale prices can not exceed 5,000 francs.

ART. 37. They can admit adherents in consideration of a monthly payment to be fixed by the statutes. These adherents can become members of the society when their payments reach to a tenth part of a share.

ART. 38. The reserve fund of each savings bank can be employed in loans made to coöperative societies up to one-tenth of the total. Each request on the part of these societies must be submitted to the approval of the Government.

ART. 39. The national insurance bank is authorized to treat with coöperative societies and effect insurances having for its object to guaranty to them, in case of the premature death of one of its members, the entire payment of the sums remaining due at his death. These loans can by exception attain the sum of 5,000 francs.

Coöperative manufacturing societies.

ART. 40. Coöperative manufacturing societies have all the character of commercial societies. They maintain, however, their private character if they do business exclusively with their own members.

ART. 41. When a member brings to the society a share not in money, commissioners will be appointed by the general assembly to determine the value of the share.

ART. 42. Coöperative manufacturing societies will have to conform to the rules laid down in article 5.

ART. 43. Coöperative societies of manufacture are bound to conform in all their transactions to the prescriptions of the commercial code.

ART. 44. In these societies the capital can not be increased until the half at least of the shares previously subscribed be paid up.

ART. 45. Coöperative societies of manufacture are exempt from the income tax as long as the nominal capital of the society divided by the number of associates does not exceed 2,000 francs for each member.

Transfer of shares.

ART. 46. The shares of a coöperative society having a commercial character are not negotiable until after the definite constitution of the society and its registration.

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Profit-sharing.

ART. 50. Any merchant, manufacturer, or farmer and any commercial, manufacturing, or agricultural society can admit its workmen or employés to a share in the profits in the enterprise without incurring any responsibility in case of loss.

ART. 51. In accepting the participation, the interested parties can renounce expressly all control or verification. In case there be no specified renouncement, this control and verification can be regulated by agreement. In the case where there is no agreement, an accountant agreeable to both parties can be named by a civil magistrate.

. 52. In the case where, according to the statutes, the whole or a part of the profits distributed is kept in the business and gives the right to a new share in the profits, cipants will possess no other rights as regards the control of the books than that de- the last paragraph of the previous article.

. 53. The profits distributed to the workmen are exempt from all tax.

. 54. All the previous laws, in so far as they are contrary to the present law, are abol- Coöperative societies already established can profit by the present law by conforming scriptions.

FRANK B. LOOMIS,
Consul.

ITED STATES CONSULATE,
St. Etienne, November 28, 1892.

RAILWAY EMPLOYÉS IN FRANCE.

[Inclosure 1 in Consul Loomis's report.]

staff of the company taken as a model is composed of 23,000 employés.

875 the company received 1,745 applications for employment; in 1877, 2,625 appli- in 1879, 3,530; and in 1882 the number increased to 4,766.

y application must be addressed to the manager; it is examined summarily and then ted to one of the heads of the company's departments. Every applicant must be at years old and not more than 35. Applicants are examined free of charge by the 's medical officer, who gives a certificate stating that they are fit or unfit for duty. acancies occur, choice is made first among those candidates who have completed their service and who appear to offer the best guaranties for fulfilling the conditions re- or the vacant post. After them come those who by their antecedents and position o merit consideration, and finally those provided with certificates or special recom- ons.

n on active duty, the employé is at first paid by the day, the wages varying according ture of the work. In the clerical staff salaries commence at the rate of from 100 rancs per month. After a period of probation (six months or a year), if the em- services have been satisfactory, he is classed—that is to say, registered—as a mem- e regular staff, and then receives a commission signed by the director of the company. he fact of accepting this commission the employé agrees to be bound by all the com- egulations. Henceforth he is subject to all the obligations of his post, but at the same immediately acquires the right to a pension and benefits by the various institutions, stores, etc., and the numerous benevolent measures relating to board, fuel, etc., med- , free traveling over the company's lines, advances, assistance, etc.

hall now refer to these various institutions, from which the staff derives a considerable of emoluments.

PENSION FUND.

serve of 4 per cent is retained each month on the salary of a regular employé, which, with the first twelfth of any increase of salary, is paid into the Government fund for rsons (*Caisse de la Vieillesse de l'Etat*) in the name of the employé if he be a bache- , if he be married, then jointly in his name and that of his wife.

company forms a special pension fund, maintained by a contribution equal to the sum on the salaries of employés. It is by means of this contribution that the company es to insure to its employés, their widows and children, retiring pensions subject to wing conditions:

employés acquire the right to a regular pension on condition of being 55 years of age ing served for twenty-five years.

The retiring pension is to be equal to one-half of the average salary of the last six years, with an increase of one-sixtieth of the mean salary for every year of service over twenty-five years, with the condition that no pension shall in any case exceed two-thirds of the average salary.

The maximum retiring pension is fixed at 6,000 francs.

ANTICIPATED PENSIONS.

Anticipated pensions may be granted to any employé who from ill health is certified by the company's medical officer to be incapable of fulfilling his duties, but on the express condition of his being 50 years of age and having served at least twenty years.

Widows.—When an employé of the company has completed 15 years' service, whatever may be his age, and if he has been married at least three years, one-half of his pension, calculated in proportion to the number of years of service, reverts on his death to his widow.

Children.—In case of the mother's death, one-half of the pension formed as above reverts to each child in equal shares till the age of 18 years.

If the employé leaves the company's service before he has earned his pension, he is handed, as being his own property, a pension book of the Government fund for aged persons, in which are entered in his own name or that of his wife the total payments made for him by the care of the company. The total represents exactly the sums retained for his pension out of his pay, and he is allowed to benefit after the age of 50 years by the annuity produced by such payments and the interest thereon. The employé may thenceforth continue his payments to the Government fund for aged persons, if he thinks fit, after having left the company's service, with a view of increasing the sum standing to his credit. The annual portion contributed by the French company to its pension fund is now 1,361,000 francs.

The total number of employés in receipt of pensions up to December 31, 1882, was:

	Number.
Employés	1,073
Widows	592
Children	55
Total	1,720

The synopsis of pensions paid from 1865 to 1882 relating to active duties on the lines only is composed as follows:

Twenty-six chief or assistant officials at depots received an average annual pension of 1,813 francs, 91 engineers received 1,090 francs, and 4 stokers received 742 francs. Consequently 121 employés of an average duration of service of twenty-six years have been paid an average pension of 1,234 francs. Nine widows of chief or assistant officials at depots were paid during the same period average pensions of 800 francs, 35 widows of engineers 436 francs, and 2 widows of stokers 216 francs. Thus 46 widows of employés have received during the same period an average pension of 497 francs per annum.

BENEFIT CLUB.

The benefit club founded by the company was instituted for the purpose of aiding sick and needy workmen. The funds of the club are composed of a reserve of 1½ per cent upon the wages of the workmen and a contribution by the company of a sum equal to the total reserve fund paid by the members, plus all fines. The club is managed by a president and two vice-presidents nominated by the company and representatives elected by the members.

In virtue of an excellent measure adopted in 1881 deserving workmen are admitted to be classed as regular employés after having been employed by the company for at least five years.

By a temporary provision an annual pension of 365 francs is granted to aged servants of the company who have been employed during twenty years, but who can not be classed as regular employés.

The benefit fund costs the company 120,000 francs per annum.

STORES.

The company has founded exclusively for the benefit of the employés and the members of their families living with them stores that provide groceries, wine, and household utensils at the most reduced rates. At Paris all articles sold from the stores are delivered either to the members at the stores or by carriers at the purchasers' dwellings. In the provinces the stores take the delivery of goods purchased twice each month on every part of the line. In both the above cases the stores recoup the cost of delivery by means of a monthly reserve on the salaries, thus avoiding the passing of any cash. The stores fix the selling prices by an increase of so much on the cost price as is strictly necessary to cover expenses. The goods are all of excellent quality, and are sold cheaper than the ordinary trade rates, especially in the provinces.

The sales of stores during the last two years amounted to 1,200,000 francs per annum.

COMPENSATION FOR EXCEPTIONALLY HIGH PRICES FOR PROVISIONS.

In case of temporary and exceptionally high prices of provisions, there has been allowed to each employé whose wages do not exceed 1,800 francs in the department of the Seine (Paris) and 1,500 francs in the other departments a monthly sum varying according to the number of members in each family, but not exceeding 15 francs per family.

The company paid of late years on this account 902,283 francs from October 1, 1873, to August 30, 1874, and 207,495 francs from December, 1879, to January, 1880. During the latter period a sum of 100,000 francs was also distributed among the employés on active service who were employed to remove the snow during the extremely cold weather.

Among the foregoing allowances should be included the indemnity of 10 per cent granted during the Universal Exhibitions of 1878 and 1889 to those employés on duty in Paris whose salaries were less than 2,400 francs. The cost to the company for this item from May 1, to November 30, 1878, amounted to the sum of 474,445 francs.

FUEL.

Combustibles intended for the use of employés are carried in the same way as drinks and provisions, that is to say, at the very low rate of 2 centimes per ton and per kilometer. The company, moreover, allows its employés to benefit by the advantageous conditions it is able to obtain from the purveyors of coal for heating its own premises. It also facilitates the immediate payment required on delivery by advancing to every employé who makes the request, and out of his monthly pay, the necessary sum to pay, at the time of delivery, the bill for the coals purchased.

MEDICAL ATTENDANCE AND MEDICINES.

Regular employés, their wives and children living with them and still under their charge have a right to gratuitous treatment by the company's medical officers. The employés have a right to the free use of medicines, baths, and apparatus and to stay in hospitals, etc., gratis, provided their salary does not exceed 3,000 francs. This right to medical aid is only refused in case of illness caused by misconduct. Medical attendance and medicines during 1882 cost the company 200,000 francs.

JOURNEYS.

The journeys which employés and their families may have to take over the company's lines are permitted on the following conditions:

Absolute freedom from charge is granted as a right to the employés of every grade over the company's lines. Of course, the class varies according to the rank of the employé. Superior officials travel by first class, those under the rank of heads of departments by second class, and inferior employés and workmen by third class.

This privilege constitutes a great advantage for the employés. It allows them to reside outside the great centers, where provisions, and especially house rent, are at exorbitant rates.

By this means employés on duty in Paris can reside in the environs or in smaller towns, where they find healthier and more comfortable dwellings than in Paris. The employés have so thoroughly understood this that the great majority of them reside in the suburbs.

Employés' wives are also allowed to travel free of charge when they reside in places deprived of means of visiting the markets of neighboring towns for the purpose of fetching or taking back work. Children up to the age of 15 who frequent the schools and apprentices up to the age of 18, when the places in which their fathers reside do not possess sufficient school accommodation or facilities for employment, are also allowed to travel free of charge by the company's trains.

Fathers, mothers, wives, and children of employés travel at one-tenth of the usual rate. The sum produced by tickets issued at one-tenth of the rate in 1881 was 132,743.30 francs. The concession in favor of the employés (and their families) was therefore 1,194,689.70 francs.

Half rates are allowed to grandfathers, grandmothers, uncles, aunts, brothers, sisters, half-brothers, half-sisters, sons and daughters in law, nephews, and nieces of employés. The sum produced by tickets issued at half price in 1881 was 163,790.70 francs. The company therefore made a concession of an equal sum, viz, 163,790.70 francs.

Over and above the tickets called "service tickets," the number of free passes for residence at a distance, purchase of provisions, or education delivered to employés and their wives and children during the year 1882 was thus composed: Employés, 3,500; wives, 2,850; children, 500.

Here it may be stated that the company's agents obtain from other companies, by reciprocity and the intermediary of the company, a reduction to one-fourth of the usual rate for their employés and to one-half for the members of their families residing with and provided for by them.

The rates allowed for journeys over the company's lines of pensioned employés and their wives and the widows of those who have died after fifteen years' service are the following: Pensioned employés, free passes during the year following the date of their being pensioned, one-fourth of the rate during the second year, and half rate during third year; wives of pensioned employés, one-fourth of the rate during the first year after their husband's pension commenced and half rate during the second and third years; widows of employés who have died after fifteen years' service, half rates for themselves and their children residing with them during the year following their husbands' death.

ADVANCES—ASSISTANCE.

When certain employés are in embarrassed or unfortunate circumstances, the company assists them by making, at their request, an advance payable, without interest, by monthly retention of one-tenth of their pay, or in the most deserving cases grants certain aid. The sums paid under this head in 1882 were:

	Francs.
For sums advanced	64,935
Aid during the year	141,976
Distributed at the end of the year	48,000

GIFTS AND GRATUITIES.

Independently of advances, the employés receive either at the end of or during the year certain gratuities as a reward for praiseworthy conduct. The gratuities given by the company at the end of 1882 for good conduct amounted to 695,700 francs.

PROMOTION.

At the commencement of each year an increase of salary is also granted to a certain number of employés. This increase amounted on January 1, 1883, to 133,000 francs. This measure is quite apart from any increase obtained by the employés of the company in the course of the year when thèy are promoted to other duties, either on account of changes made on the spot or by change of residence.

In this company every employé who has given no cause for complaint receives by right every two years an increase of 50 francs while continuing to reside in the same place, but in such a manner that his regular salary shall not exceed a certain sum in each class of employment.

GRANTS IN AID OF RENT AND COST OF LIVING.

Extra sums varying between 50 and 200 francs per annum are allowed to the inferior class of employés who reside in Paris and certain departments where the high rates of rent and cost of living are more particularly felt. The sum paid by the company for this item amounts to nearly 1,000,000 francs.

PREMIUMS.

Engineers and stokers receive over and above their wages certain premiums or bonuses for good services and economy of the materials used by them.

The following is a summary of the conditions under which such premiums are granted in France:

Bonus on economy in the use of combustibles, grease, oil, and other materials.—Engineers and stokers receive a premium for every ton of combustibles and kilogram of grease economized on the fixed quantity of such materials allowed for their use.

For making up time.—In case of time lost by trains being late, but not through the fault of the engineer, he is allowed additional combustibles properly calculated for each minute of time so made up.

For taking care of the engines.—A premium is also allowed to engineers calculated by the distance run over by the same engine above the regular stated minimum, when such engine shall not have required other repairs than those of ordinary wear and tear.

The amount for each employé of such bonuses, which do not include the grants for rent and living, is very important, as is shown by the following figures relating to work done in 1882:

Description.	Fixed pay.	Premium.	Total.
Engineers:	*Francs.*	*Francs.*	*Francs.*
Maximum	2,700.00	2,246.70	4,946.70
Average	2,200.00	1,120.70	3,320.70
Stokers:			
Maximum	1,600.00	423.05	2,023.05
Average	1,482.00	218.50	1,700.50

The following is the amount paid in premiums in 1882:

	Francs.
Engineers	1,129,545
Stokers	340,049
Total	1,469,594

Premiums for punctuality are allowed by the company to the working staff as an encouragement to avoid delays in the service of passenger trains. This costs 70,000 francs for an average year.

Guards and inspectors of the company receive a percentage on the extra receipts received by them en route on the passenger tickets. The average in 1882 was:

	Francs.
For the traveling inspector	284
For the traveling guard	129

JOURNEYS TO AND FRO.

Employés and others on active service are allowed a certain sum to make up for extra expenses caused by temporary absence from their ordinary place of residence.

HOLIDAYS.

In France holidays are allowed to employés. In the active service (working, plant, and traction) such employés who by their duties can not take advantage of their Sunday's rest obtain every year holidays of from twelve to twenty days with full pay. In the offices holidays vary from twelve to twenty days per annum with full pay.

ASYLUM—CRÈCHES.

In Paris the gathering into one quarter of the numerous employés at stations and workshops has suggested the idea of founding asylums and crèches. These establishments, founded and maintained at the company's expense, are set up in the quarter inhabited by the majority of employés engaged at such stations and workshops.

The crèches take in the sick young children of employés on the usual conditions of establishments of this kind. To the asylums the employés may send their children of both sexes for the whole day. The daughters of employés, moreover, receive primary education in the schools where they are received up to the date of their first communion. The children are provided gratis with pure milk of excellent quality, soup, and in summer with wholesome beverages.

The school children are also provided with soup. In winter a distribution is made to the most needy, at the company's cost, of warm clothing, etc., and at the expiration of the school year—on prize days, to which the utmost solemnity is given—the most deserving children are presented, besides the usual books and prizes, with savings-bank books.

SCHOOLS—ORPHANAGES.

It should also be stated that the company has founded in the orphanages bursaries exclusively granted to the children of the employés killed or who died during their service. The boys remain in the orphanages until the age of 14 years and the girls until the age of 17.

SITUATIONS RESERVED FOR WIDOWS AND CHILDREN OF FORMER EMPLOYÉS.

In France the posts of ticket offices, telegraph clerks, waiting-room attendants, etc., are reserved for the widows and daughters of former employés, as is also the management of bookstalls at stations. And in further aid to necessitous families the company gives out sewing to the wives of the employés.

WAGES.

The maximum average wages of engineers and stokers, including the fixed rate, extra pay for residence at a distance, and premiums, amounted in 1882 to—

Description.	Maximum.	Average.
	Francs.	*Francs.*
Engineers	5,340.45	3,[illegible].60
Stokers	2,516.05	1,989.80

In France employés are paid monthly, the rate of pay being fixed annually. Engineers are paid by the day. They commence at 6.25 francs; if their work is satisfactory, they obtain every year an increase of 12 centimes per day until their pay amounts to 8.75 francs. Some receive, as an exception, 9.25 francs, which is the maximum.

Stokers commence at 3.75 francs per day; at the end of each year they may obtain 6 centimes per day more, and so on by annual increase to the maximum of 5 francs.

These employés are not paid for the days they do not work (principally Sundays). Nevertheless, when by exception they do work on Sundays, they are paid wages for one day and a half.

To the fixed rate of pay should be allowed the premiums for economy, the amount of which per head, as is shown by the above figures (see "premiums") is very important in France. Engineers and stokers are allowed their expenses to and fro when they are obliged, by the nature of their work, to sleep away from their usual residence. In France engineers are allowed 60 centimes and stokers 46 centimes.

The following is a comparative table of wages paid at the present time to some other employés of the company:

	Francs.
Pointsmen of all grades	1,300 to 2,050
Guards and brakemen	1,300 to 1,850
Laborers, porters, navvies, etc	1,000 to 1,600
Washers	1,200 to 1,500

RESIGNATIONS, EXPULSIONS, AND DISMISSALS.

In this company employés who resign frequently leave the company at their own convenience on giving their superiors only a few days' notice; others purely and simply abandon their posts. On its part, when the company discharges its employés for misconduct, it allows them from fifteen days' to six weeks' wages, unless the cause of their discharge be serious, such as theft for instance. In cases where the company is obliged to discharge the employé on account of the state of his health or incapacity to work, he is allowed an indemnity varying from three months' to one year's pay, but before a decision becomes final the employé is put on half pay for at least three months.

The company abstains as much as possible from dismissing an employé, and nearly always gives him the opportunity of resigning. Certificates are delivered to employés in the company's service, which state whether they have resigned or have been summarily expelled or discharged.

DEATHS.

In France when an employé dies during active service the funeral expenses are borne by the company at the rate of 10 to 15 per cent of his annual salary. Assistance is also allowed to the widow and children of the deceased.

SUMMARY.

The company's contribution to the pension fund for one year is 1,360,000 francs. The following are the details of other sums paid by the company for certain benevolent purposes in favor of employés or the members of their families:

	Francs.
One year's contribution	120,000
Special charge for extra labor by inferior employés in removing snow (one winter)	100,000
Medical attendance and medicines	200,000
Gratuities and aid at the end of the year	900,000
Premiums:	
To engineers and stokers (one year)	1,469,000
To workmen (one year)	100,000
Wholesome beverages	30,000
Asylums and crèche expenses	55,000
Total	2,974,000
Company's contribution to pension fund	1,360,000
Making for an average year	4,334,000

In 1878, during the Universal Exhibition, an allowance of 10 per cent on the pay was made to inferior employés of the company residing in Paris. This allowance amounted to 475,000 francs. Sums advanced without interest to employés varied between 50,000 and 65,000 francs.

In these expenses the reductions on the carriage of provisions, furniture, combustibles, etc., for the use of employés and the allowances made to their relatives on the railway tickets are not included. Such benefits are, however, considerable, and it may be stated that during 1881 the diminution on railway tickets alone in favor of the employés and their relatives cost the company the sum of 1,358,000 francs on the ordinary tariff. The total amount of the indemnity allowed by the company for extra work during the exhibition in 1889 was 600,000 francs; in 1878 it only amounted to 475,000 francs.

NEW MEASURES.

Various benevolent measures have been adopted of late years in favor of the working staff, the most important of which are the following:

The foundation of extra bursaries in different institutions in favor of children of employés killed or wounded in the performance of their duties or whose parents are known to be specially deserving. These foundations cost the company 25,000 francs per annum.

The delivery of passes over the various lines to enable employés discharged on account of strikes and their families to return to their homes. The company has, moreover, distributed a sum of 2,200 francs in aid of the families of 22 employés.

Further facilities for traveling have been obtained by the company on the basis of reciprocity from other French companies. The employés are entitled once a year to a journey over one or more lines free of charge for themselves and at one-fourth of the usual tariff for the members of their families living with them and dependent on them. Moreover, in order to procure still further advantages for the employés living in the suburbs of Paris, each company delivers passes to the employés of other companies traveling over their lines within a distance of 30 kilometers at one-fourth of the usual rate for season tickets. An allowance is made irrespective of and not included in the indemnity for residence varying from 24 to 72 francs, according to the number of children under 16 years of age, to those employés who have more than three children. This costs the company 200,000 francs per annum.

Finally, the company has just increased from 5 to 8 per cent upon the rate of wages its donation to the pension fund founded in aid of the staff, without increasing the amount retained on the sums paid to them.

A MODEL PROFIT-SHARING HOUSE.

[Inclosure 2 in Consul Loomis's report.—Translation.]

REGULATIONS RESPECTING PARTICIPATION BY WORKMEN IN THE PROFITS OF THE FIRM OF MULLER & ROGER.

ARTICLE 1. From and after January 1, 1892, besides the payments toward the benefit fund and the proportion fixed at 26 francs to be paid to the pension fund, which will be referred to later, a reserve upon the net profits of the year shall be set apart in favor of the employés and workmen who, by reason of the care and attention showed by them, shall be chosen as participators in the profits. This participation is intended to constitute for the employés and workmen a savings fund, to be the completion of the benefit fund, which assures them the means of existence in times of sickness, and of the pension fund, which provides them with a life annuity when age prevents them from working.

ART. 2. A sum fixed at 26 francs per annum is to be paid to the national pension fund for aged persons in favor of such employés and workmen who undertake to pay also a like sum, which shall be retained by Messrs. Muller & Roger out of their salaries and wages. This sum of 26 francs shall be invested by Messrs. Muller & Roger without limit or condition as capital reserved or set apart, in order to constitute for him a pension at 50, 55, or 60 years of age. All the employés and workmen of the firm have, without exception, the right to be paid this sum. They shall also be members of the benefit society.

ART. 3. The sum to be divided shall be distributed among the parties according to the number of shares allotted to them as follows:

ART. 4. The number of persons entitled to participate is fixed at one hundred, but this number may be increased.

ART. 5. The amount to be distributed shall be divided into two hundred equal parts. The participators who have subscribed for a term of less than six years shall receive one share; those above six and under twelve, two shares; those above twelve, three shares. Admission to participation in two or three shares shall be decided by the council on the proposition of Messrs. Muller & Roger.

ART. 6. The surplus, that is to say, the sum for which there are no claimants, shall be paid to a reserve fund to be distributed in case of bad seasons or to provide rewards of merit in money for every workman, participator or not, who has invented any improvement productive of economy in work or who by his conduct, labor, and assiduity shall be worthy of encouragement. The reserve fund shall not exceed 30,000 francs. If the reserve be exhausted when all the parts are provided for, it shall be replenished by means of a deduction of one-fourth of the amount of the sum shared during the years of participation.

ART. 7. To be allowed to share in the profits, the party must be French, of at least 25 years of age, and have been an employé of the firm during three consecutive years; must have shown zeal and activity in his work and be a member of the pension fund for the aged and the mutual aid society founded by the firm.

ART. 8. Candidates for participation should send in a written request to the heads of the firm, who alone have the right to present them to the council.

ART. 9. The council of admission and survey is thus composed: (1) Of two masters as president and vice-president; (2) of three employés and four foremen nominated by Messrs. Muller & Roger; (3) of six workmen—three of the foundry men and three of the finishers—nominated by the participators.

ART. 10. The sum alloted to each participator shall be paid in his name into the savings bank, and his bank book shall be handed to him each year after the accounts of the firm have been balanced.

ART. 11. Every participator shall have the right to add such further deposits to his account in the savings bank as he may think fit, but he can only dispose of the sum he has himself deposited. The sum derived from his share in the profits can only be withdrawn by him with the consent of the council of management, to which he shall make application in writing.

ART. 12. Every infringement of these articles may cause the removal of his name from the list of participators; but the withdrawal of the sums paid out of the share money without the authorization of the council shall of itself, and without appeal, involve such removal.

ART. 13. Every participator who shall voluntarily leave the works or shall be discharged on serious grounds shall lose all right to participation. Nevertheless, when his departure is caused by want of work, his membership shall not lapse. The employé or workman thus temporarily absenting himself from want of work shall be entitled to a share in the profits proportionate to the time during which he has worked, and he must be ready to return to work on the first notice given or within eight days. Default on his part to be at the works on the eighth day shall entail the removal of his name from the list.

ART. 14. Illness and military service are regarded as temporary absence.

ART. 15. While waiting for the authorization to pay into the savings bank a larger sum than 2,000 francs, when this amount shall be reached, there shall be purchased to the best advantage to the participator a certificate of Government stock in his name, which shall be handed to him, but upon which he can receive the interest only. In very urgent cases, however, a participator may be allowed to sell his certificate and to dispose of certain sums as provided by article 11.

ART. 16. After twenty years of participation or at 60 years of age, the participator shall be permitted the free disposal of his savings, and from this period the amount of his share shall be paid in cash.

ART. 17. The ordinary meetings of the council shall be held on the first Sunday of each quarter. Extraordinary meetings shall be specially convened when necessary.

ART. 18. A general meeting of the employés and workmen participators shall be held every year when the accounts have been balanced to hear the report of the council of admission and survey, to learn the amount of the sum to be divided, and to approve, if need be, such modifications in the regulations as Messrs. Muller & Roger may think fit. The modifications shall not be retrospective.

ART. 19. In case of the death of a participator, his account shall be closed at the last balance without any claim to share in those of the current year, and his savings book shall be handed to his administrators.

ART. 20. The title of participator implies special conditions of stability and attachment to the firm; no participator can be finally discharged without the decision of Messrs. Muller & Roger.

ART. 21. Messrs. Muller & Roger reserve to themselves the right to put an end to the present regulations at the expiration of each term if the results are not satisfactory.

The term commences on February 1 in each year and terminates on January 31 of the following year.

PRINTING-HOUSE PROFIT-SHARING.

[Inclosure 3 in Consul Loomis's report.—Translation.]

LITHOGRAPHIC AND LETTER-PRESS PRINTING WORKS OF THOMAS BROTHERS, PONTARLIER (DOUBS).

ARTICLE 1. Being desirous of ameliorating the condition of the employés and to encourage saving, which is the only way for workmen to be able to resist the effect of slack seasons, sickness, infirmity, and old age, and, moreover, to show their recognition of services rendered, the firm of Thomas Brothers, printers, has organized a system of participation in profits from and after January 1, 1892.

ART. 2. After one year only of employment, dating from January 1, each employé, male and female, is allowed to participate in the profits of the establishment.

ART. 3. No one can claim any share in the profits either during the first * of employment or that of discharge.

ART. 4. With regard to the sum to be divided, two reasons shall be taken into consideration, namely, the salary or daily wages and the number of years of service in the employment of the firm.

ART. 5. After five years' employment from January 1, 1892, every participator shall be paid a bonus of 5 per cent on the profits, according to the amount of his share, and after ten years the bonus shall be 10 per cent. The years of employment must be consecutive, but neither the time of military service nor of sickness shall be regarded as an absence.

ART. 6. The share of the profits of employés and workmen shall be entered at the end of each term in separate account books in the names of the participators. These books shall be lodged at the office.

ART. 7. The shares in the profits shall bear interest at the same rate as that paid by the Government institutions. Such interest shall be paid annually to those to whom it belongs, according to their own wishes.

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* Printed as in copy.

ART. 8. In order to avoid abuses and that the savings may not be made away with, the amount thereof is considered to be neither transferable nor subject to seizure; moreover, the parties interested shall only receive the capital when they quit the works, and only at the expiration of three months after they have ceased work. But, in case of marriage, an important purchase, or other major consideration, the capital may be handed to them. Every member of the staff of the establishment who participates shall, whenever possible, be a member of the Mutual Aid Society of Pontarlier. Their entrance fees and subscriptions shall be paid monthly out of the sum coming to each of them. Those who for some cause or other can not become members of the society may, in case of sickness and should they desire it, have their doctor's fees and medicines paid for by the firm; but the expenses so incurred will be deducted from the share due to them.

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ART. 10. In case of death the amount of the savings account shall be immediately paid to the heirs.

ART. 11. The working day is to be of ten hours, commencing all the year round at 7 a. m. and finishing at 6 p. m., with one hour of rest from noon until 1 p. m. Overtime shall be paid at the rate of 20 per cent more than the usual price per hour.

ART. 12. It is formally prohibited to every employé, man or woman, to help in work done at rival establishments. Smoking is also strictly forbidden during work time. This prohibition is especially applied to apprentices, who shall neither in the workshops nor when on errands use tobacco. On the third remonstrance made to them on this subject these apprentices will be sent home to their parents.

ART. 13. The present regulations shall be in force for a term of five years.

PROFIT-SHARING HOUSES IN FRANCE.

[Inclosure 4 in Consul Loomis's report.]

Table showing establishments in which the employés share in the profits.

Names of establishments.	Year of beginning.	Character of participation.	Modes of payment.
Leclaire, painting contractor, Paris.	1842	Fixed proportion, joint ownership by shares or parts, and control of accounts.	In cash and by benefit societies.
Laroche-Joubert & Co., coöperative paper-makers, Angoulême.	1843	do	Do.
Orleans Railway Company	1844	Fixed proportion	By benefit societies.
National Printing Office, Paris			Do.
Linen Trades Agency, Paris	1846	Fixed proportion	In cash.
Deberny & Co., type-founders, Paris.	1848	do	By benefit societies.
Gaidan, banker, Nîmes	1848	do	In cash.
Duport-Paul, printers, Paris	1848	do	By benefit societies.
General Insurance Company, Paris.	1850	do	Do.
Phœnix Insurance Company, Paris.	1853	do	In cash and by benefit societies.
Union Life and Fire Insurance Company, Paris.	1854	do	Do.
J. Chugol & Co., mines at Blangy.	1854		By benefit societies.
National Insurance Company, Paris.	1855	Fixed proportion	In cash and by benefit societies.
La France Insurance Company, Paris.	1858	do	By benefit societies.
Suez Canal Company, Paris	1865	do	Do.
L. Brière, printer, Rouen	1866	do	In cash.
Renard, Villette & Bunand, dyers, Lyons.	1868		Do.

Table showing establishments in which the employés share in the profits—Continued.

Names of establishments.	Year of beginning.	Character of participation.	Modes of payment.
Society of Woolen Fabrics of the Vosges.	1870	Fixed proportion	In cash and by benefit societies.
Pernod, distiller, Pontarlier (Doubs).	1871		By benefit societies.
Roland-Gosselin, stockbroker, Paris.	1871		Do.
Vernes & Co., bankers, Paris	1871		Do.
Abadie & Co., paper-makers, Theil (Orme).	1871		Do.
Aubert, printer, Versailles	1872	Fixed proportion	In cash.
Barbas, Tassart & Balas, plumbers, Paris.	1872	Fixed proportion and control of accounts.	In cash and by benefit societies.
Chaix, printer and publisher, Paris.	1872	Fixed proportion	Do.
Gayet, Perignon & Co., plumbers, Paris.	1872	do	In cash.
Godchaux & Co., printers, Paris	1872	do	Do.
Hanappier, wholesale wine merchant, Bordeaux.	1872		By benefit societies.
Eagle Insurance Company, Paris.	1872	Fixed proportion	Do.
Sun Insurance Company, Paris	1872	do	Do.
Society of Coloring Matters and Chemical Products, St. Denis.	1872	do	Do.
Mame & Son, printers, Tours	1874	do	In cash and by benefit societies.
Masson, publisher, Paris	1874	do	Do.
Comptoir d'Escompte, Rouen	1875	do	In cash.
Oissel Spinning Mills (Seine-Inférieure).	1875		In cash and by benefit societies.
L'Urbaine Insurance Company, Paris.	1875	Fixed proportion	By benefit societies.
Plassard, Morin, Fillod & Co., (Magasins du Bon Marché), Paris.	1876	Joint ownership by shares or parts.	Do.
L'Abeille Insurance Company, Paris.	1876		Do.
Besselièvre, chintz and calico printer, Maromme (Seine-Inférieure).	1877		In cash and by benefit societies.
Dequenne & Co. (late Godin), Guise (Aisne).	1877	Fixed proportion and joint ownership by shares or parts.	By benefit societies.
Sautter, Lemmonier & Co., electricians, Paris.	1877		In cash and by benefit societies.
Buttner-Thierry, lithographic printers, Paris.	1879		Do.
Bleaching and dye works of Thaon (Vosges).	1880	Fixed proportion	By benefit societies.
Caillard Brothers, mechanical engineers, Havre.	1880		Do.
Domain of Chateau-Montrose, Medoc.	1880	Fixed proportion	Do.
Society of Depôts and Comptes Courants, Paris.	1880	do	Do.
Linen Society of Finistère, Landerneau.	1880	do	In cash and by benefit societies.
Caillette, master mason, Paris	1881	do	In cash.
Lefranc & Co., printers' ink makers, Paris.	1881		By benefit societies.
Piat, founder-engineer, Paris	1881		In cash and by benefit societies.
Doguin & Co., tulle and lace makers, Lyons.	1882		Do.
Moutier, wholesale locksmith, St. Germain.	1882	Fixed proportion and control of accounts.	Do.
Moullot, printer, Marseilles	1882		In cash.
Fives-Lille Company, Nord	1883	Fixed proportion	By benefit societies.
Gilon, master locksmith, Paris	1883	do	In cash and by benefit societies.
Society of Factories at Mazières (Cher).	1883		By benefit societies.

Table showing establishments in which the employés share in the profits—Continued.

Names of establishments.	Year of beginning.	Character of participation.	Modes of payment.
Bourdoux & Co., Industrial Society of Corrèze, Paris.	1884	Fixed proportion	In cash and by benefit societies.
Gounouilhon, printer, Bordeaux	1884	do	Do.
Baille-Lemaire, opera-glass and telescope maker, Paris.	1885	Fixed proportion and control of accounts.	Do.
Lecoeur & Co., master joiners, Paris.	1885	do	Do.
Lombart, chocolate manufacturer, Paris.	1885	....	Do.
Mozel & Delalonde, master masons, Paris.	1885	Fixed proportion and control of accounts.	Do.
Roux & Co., steam-engine constructors, Paris.	1885	Fixed proportion	Do.
Saunier, master painter, Paris	1885	Fixed proportion and control of accounts.	Do.
Count Lariboisière, agricultural enterprise, Monthorin.	1886	Fixed proportion	In cash.
Mondail, roofing contractor, Paris.	1886	do	In cash and by benefit societies.
Félix, dressmaking establishment, Paris.	1886		
Montorier, printer, Paris	1887	do	Do.
Nayrolles, embroidery works, Paris.	1887	Fixed proportion and control of accounts.	In cash.
Thuillier Brothers, plumbing contractors, Paris.	1887	do	In cash and by benefit societies.
Bessiot-Pouget, boot-upper manufacturers, Ardèche.	1888	....	In cash.
La Foncière Insurance Company, Paris.	1889	....	By benefit societies.
Boivin, gimp manufacturer, Paris.	1890	Fixed proportion	Do.
Broquart, mirror-maker, Bordeaux.	1890	do	In cash and by benefit societies.
La Providence Insurance Company, Paris.	1890	do	By benefit societies.
Pommery Son & Co., champagne merchants, Rheims	1882	....	In cash and by benefit societies.
La Compagnie Générale Transatlantique, Paris.	....	....	In cash.
Ducher, tailor and uniform-maker, Paris.	....	....	By benefit societies.
Gillet & Sons, silk-dyers, Lyons	....	....	In cash.
Plugeot Brothers, wholesale ironmongers, Valentigny (Doubs).	....	....	By benefit societies.
Piquet & Co., mechanical constructors, Lyons.	....	Fixed proportion	In cash.
Rivoirre & Calret, macaroni-makers, Lyons.	....	....	Do.
Balt-Foundries of Bogny-Branx (Ardennes).			
La Comédie Française, Paris	....	Fixed proportion and control of accounts.	In cash and by benefit societies.
Cusenier, distiller, Paris	....	Joint ownership by shares or parts.	
O. Fauquet, spinner, Câbles (Eure).	....	....	Do.
Rattier, wholesale grocer, St. Etienne (Loire).			
Gaslight companies for the towns of Mens, Vendôme, and Vannes.			
Sachs, chemical manure, Aubervilliers (Seine.)	1890	....	Do.
Gaudineau, La Flèche.			
Janvier, senior and junior, Mans.			
Coöperative Society of the employés of Selvay & Co., Dombaste (Muerthe-et-Moselle).	1891	Fixed proportion	In cash.

THE LECLAIRE SYSTEM OF PROFIT-SHARING.

[Inclosure 5 in Consul Loomis's report.]

The workmen are united in a limited company, which is called the Provident and Mutual Aid Society of the Employés of Leclaire & Co.

On the 1st of January, 1891, the society possessed a capital of 2,419,000 francs. The society receives 50 per cent of the profits of the firm annually. The money is disbursed in the following manner:

In case of sickness, medical attendance and medicines are furnished the members without cost; the wives and children of the members receive the same gratuitous service. Prizes are paid to parents whenever an infant is born.

At fifty years of age or after twenty years of service in the house members receive an annuity of 1,200 francs. The wives of the workmen killed in the line of duty and their children receive half the pension.

In 1890 there were 77 persons receiving pensions. Burials are at the expense of the society. In addition to the annuity, every member has his life insured for 1,000 francs at the expense of the society.

A MODEL COÖPERATIVE SOCIETY.

[Inclosure 6 in Consul Loomis's report.]

The coöperative company of the carpenters of La Villette, a joint-stock company formed in 1881, has been very happy in its results. In 1882 the company did 400,000 francs worth of business. It rents a timber yard and owns its own horses, wagons, and tools.

The original capital was $6,000, but at the present time it is $18,000, divided into shares of $20 each.

The business of the company is conducted by a committee of ten members chosen at a general meeting of the shareholders; the committee can delegate its powers to a director, who is paid $100 per month. The director is empowered to discharge workmen for cause.

The number of members or shareholders is about 200. The society pays its workmen 18 cents per hour, other employers paying only 16 cents per hour.

Five per cent of the profits are held as a reserve fund, in compliance with the laws regulating such companies; the balance and 5 per cent on the invested capital is paid in interest. The remaining surplus is distributed as follows: Sixty per cent is set aside for a "reserve extraordinaire" and 40 per cent is divided among the shareholders. By reason of this "reserve extraordinaire" the company is able to purchase in a wholesale way at low figures.

The workmen shareholders have received a dividend of 8 per cent on their stock.

PROPOSED FRENCH LAW RELATING TO COUNCILS OF PRUD'HOMMES.

[Inclosure 7 in Consul Loomis's report.—Translation.]

SECTION I.—THE INSTITUTION AND ORGANIZATION OF COUNCILS OF PRUD'HOMMES.

ARTICLE 1. Councils of prud'hommes are instituted for the purpose of settling by arbitration the disputes arising in matters of contracts for the hire of labor between employers and workmen, salaried clerks, and other employés. They are also competent to consider and advise upon differences arising between workmen on labor questions. They decide without right of appeal on all matters not exceeding the sum of 500 francs and with right of appeal upon whatever may be the amount of the claim in cases which have failed to receive an amicable settlement. Nevertheless, they can not take cognizance of actions for damages brought on account of accidents to employés, workmen, or apprentices. Moreover, they exercise the powers conferred on them by virtue of special legislation.

ART. 2. Councils of prud'hommes are created by decrees issued in the form of regulations of public administration, according to opinions given by chambers of commerce or consulting chambers of arts and manufactures, in places where the importance of the trade indicates the necessity. The institution of councils of prud'hommes is lawful when the request has been made by the municipal of the district where it is intended to be established, accompanied by the recommendation of the general council of the department and that of the municipal councils of the districts included in the proposed quarter.

ART. 3. The decree of institution shall decide the qualifications of the council, the number of categories among which are classed the trades and professions submitted to its jurisdiction, and the number of councils told off for each category in such manner that the total number of the members of the council shall be equal to and not less than sixteen.

ART. 4. The councilors are elected for a term of six years. They are to be reëlected, one-half at a time, every three years, but they remain in office until their successors are elected.

ART. 5. The following are workmen electors:

(1) Workmen, assistants, clerks, travelers, accountants, foremen, messengers, handy men and porters, laborers, workmen and clerks employed by transport agencies, and generally all salaried employés engaged in every kind of commerce, trade, and agriculture, on the condition of being entered on the roll of political electors.

(2) Women who are French citizens, of the full age of 21 years and upwards, employed in one of the occupations comprised in the foregoing paragraph, and who have not incurred any of the penalties mentioned in article 15 of the decree of February 2, 1852.

The following are master electors:

(1) Masters who employ in their business one or more workmen or clerks, foremen, partners in companies, managers or directors invested with power over a factory, manufacturing, banking, or commercial establishment, workshops, and, generally speaking, any kind of business; directors and engineers of transport agencies, concessionaires, and those who carry on mining operations; members of boards of directors, engineers of works and heads of departments, inspectors and managers of mines—on the condition of being entered on the roll of political electors.

(2) Women who are French citizens, of the full age of 21 years and upwards, personally engaged in one of the occupations in the foregoing paragraph and who have not incurred any of the penalties in article 15 of the decree of February 2, 1852.

On the list of electors for councils of prud'hommes are also entered the former members of one of the two categories above mentioned who have retired from their occupation or trade for less than ten years. Women who are called upon to elect councilors must furnish proof of residence, during six months at least, in the district of the council at the time the electoral lists are drawn up.

ART. 6. Men of 25 years of age able to read and write are eligible as electors.

ART. 7. Councils of prud'hommes are composed of an equal number of each class of workmen and employers. There shall be at least two employers and two workmen of each class.

ART. 8. The workmen are elected by workmen and employers by employers at two distinct meetings, each to be presided over by the justice of the peace or his deputy. In cases where several polling places are opened for the facility of voting, the prefect may appoint, by decree, a mayor or deputy mayor to preside at one or more of such polling places.

ART. 9. The elections take place by *scrutin de liste* (balloting by a list of persons) and according to the category to which the respective electors belong. On the first ballot an absolute majority of the votes is necessary. On the second ballot the relative majority will be sufficient. In case of an equal number of votes on the second ballot, the elder candidate is declared to be elected.

ART. 10. Every year, during the fifteen days following the revision of the electoral lists, the mayor of each district of the province, assisted by two electors—one workman and one employer—shall enter, on two different lists, the names and occupations of the workmen and employers who are electors. These two lists are sent to the prefect, who draws up and publishes, by decree, the list of each class of electors.

ART. 11. By the method of triennial renewal half the number of councilors, workmen or employers, of each class shall retire. In each of these classes the names of the councilors who are to be replaced the first time shall be drawn for. Retiring councilors are re-eligible.

ART. 12. When elections are to take place, the prefect gives at least twenty days' notice to the electors and informs them of the date and place of meeting and the hours for opening and closing the poll. The elections are to be held on a Sunday or holiday. The second ballot shall be made one week after the first.

ART. 13. The lists are kept at the office of the secretary of the council of prud'hommes and shall be communicated to anyone who asks for them or who may wish to make a copy of them. The lists may be challenged during fifteen days following the date on which they were deposited in the secretary's office. Such challenge is notified to the justice of the peace for the district, inquired into, and decided upon in accordance with articles 5 and 6 of the law of December 8, 1883, on consular elections. Rectifications are to be made by virtue of the provisions of article 7 of said law. During the three days succeeding the reception of the official report of the elections the prefect transmits certified copies of the same to the procurator-general and to the secretary of the council of prud'hommes.

ART. 14. During the fifteen days succeeding the election, or, in case of dispute, during the fifteen days succeeding the final decision thereon, the prefect shall install the councilors who have been elected. At the time of their installation the councilors shall each take, before the prefect, the following oath: "I swear to fulfill my duties with zeal and integrity."

ART. 15. In case of one or more vacancies occurring in the council from death, resignation, canceling of the first elections, changes of conditions, or otherwise, complementary elections shall take place within one month from the date of the occurrence necessitating the same, unless not more than three months have to elapse between such occurrence and the date of the next triennial renewal. Every member elected under these conditions remains in office only during the remainder of the term for which his predecessor was elected.

ART. 16. Should necessity arise for complementary elections, either on account of the original elections not having produced satisfactory results for the formation of the council, or on account of the refusal by one or more councilors to accept office, or because of their resignation, or from their having ceased to be in office by the application of article 41, and should one of these circumstances arise the vacancy thus occurring shall not be filled up until the next triennial renewal; but the council shall continue to act, whatever may be the class of members regularly elected or duly exercising their authority, provided that their number equals at least one-half of the total number of which it is composed. The same rule applies in cases where one or more elections have been annulled on account of the ineligibility of those elected.

ART. 17. The council assembled in general meeting and presided over by its senior member elects among their number, by ballot and on the absolute majority of the members present, a president and vice-president. If two ballotings show that neither of the candidates has obtained an absolute majority of votes of the members present, and if at the third ballot there should be an equal number of votes for each candidate, the councilor who has been for the longest period in office shall be elected. If both the candidates have served for one and the same period of time, the preference shall be given to the senior in age. The same rule applies with regard to the formation of a new council.

ART 18. When the president has been chosen from among workmen, the vice-president can only be chosen from among the employers, and *vice versa*. By exception, in the case provided for by article 16, the president and vice-president may both be chosen among the workmen or employers should the council happen to be composed of one only of these classes—masters or men. Objections to the election of members of the committee are submitted to the court of appeal.

ART. 19. The president and vice-president are elected for the term of one year. They are reëligible. They remain in office until their successors are appointed.

ART. 20. Councils of prud'hommes comprise: (1) A committee of conciliation; (2) a committee of judgment.

ART. 21. The committee of conciliation is composed of two councilors—one workman and one employer. The presidency belongs alternately to one and the other, according to the rotation provided for by the special regulations of each council. Lots are drawn to decide which of them shall take the chair. By exception, and in the cases provided for by article 16, both members of the committee may be chosen from among workmen or employers if the council happens to be composed of one class only.

ART. 22. Meetings of the committee of conciliation are held once a week; they are not public.

ART. 23. The committee of judgment is composed (not including the president or vice-president) of an equal number of employers and workmen. There must be at least two of each class. By exception, in the cases provided for by article 16, the committee of judgment may validly deliberate if composed of an uneven number, five at least being present, even though the respective numbers of workmen and employers present may not be equal one to the other. The decisions of the committee of judgment are determined by an absolute majority of the members present. The sittings of the committee of judgment are public. Should the discussions be of such a nature as to give rise to scandal, the president may order the doors to be closed after having referred to the opinion of the committee. The judgment must always be pronounced publicly.

ART. 24. A secretary shall be appointed at a general meeting for each council on the absolute majority of the members present. He may be dismissed at any time, but in such case the resolution to that effect must be signed by two-thirds of the councilors. The secretary is present at, and writes the minutes of, the proceedings of the committees of conciliation and judgment.

SECTION II.—PROCEDURE BEFORE COUNCILS OF PRUD'HOMMES.

ART. 25. Everyone who comes within the jurisdiction of, and is called before, the council of prud'hommes is bound, on an ordinary notice of the secretary sent through the post and registered, to present himself in person on the day and hour fixed. He can not name anyone to represent him before the committee of arbitration, except in case of absence from home or sickness. Under these circumstances only he may be represented by a relative or someone of the same trade as himself and, like himself, a workman or employer, who shall produce the secretary's notice countersigned by the party to whom it is addressed. The latter's signature must be legalized in the usual manner. Heads of industrial establishments may be represented by their managers or by an employé duly empowered to that effect. The parties can not give notice of their defense.

ART. 26. The notice must specify the day, the month, and the year, the name and profession of the applicant, statement of the case, and the day and hour of appearance. It may be sent by the applicant to the defendant's domicile or transmitted through the post by the care of the secretary.

ART. 27. Parties may at all times voluntarily present themselves before the committee of conciliation, and in such case the matter is proceeded with as if a formal application had been previously made by them. If on the day named in the secretary's notice the applicant fails to appear, the case is struck off the list, but it may come in again after a week's interval.

ART. 28. If the defendant does not appear or if an understanding can not be come to, the case is adjourned to the next meeting of the committee of judgment. The secretary gives notice to the parties by registered letter.

ART. 29. On the day appointed by such notice the parties must appear in person before the committee of judgment. In case of sickness or absence, they may be represented in the manner prescribed by article 25. Should either of the parties fail to appear, judgment is given by default.

ART. 30. Judgments of councils of prud'hommes are final and without appeal when the amount claimed does not exceed the principal sum of 500 francs.

ART. 31. If the claim exceeds 500 francs, appeal may be made to the civil tribunal against the decisions of the council of prud'hommes. The appeal to the civil tribunal shall be inquired into, and decided upon, as in commercial cases, without the assistance of an "avoué" (solicitor) being obligatory. Documents relating to procedure must be engrossed on stamp, and the cost of registration placed to the debit. The civil tribunal shall deliver judgment within three months of the date of appeal.

ART. 32. Judgments rendered by councils of prud'hommes can be contested by suing under a writ for overstepping of due power. The appeal must be lodged at latest within three months of the date of notice of judgment by a declaration filed at the registry of the tribunal and notified within the week under pain of the case going by default. Within a fortnight of the notification the documents must be sent to the court of cassation. No sum shall be paid into court, nor shall the assistance of counsel be obligatory. The court of cassation shall deliver judgment within a month of the reception of the documents.

ART. 33. In cases of absence, hindrance, or refusal of the husband's authorization, the council may allow a married woman to apply for conciliation and to appear as applicant or defendant before it.

ART. 34. Minors who can not be assisted by their fathers or guardians are provided by the council with a guardian *ad hoc* chosen among its members, who shall perform under such special circumstances the duties of a guardian.

ART. 35. The members of a council of prud'hommes can be challenged: (1) When they have a personal interest in the matter at issue; (2) when they are relatives by blood or marriage of one of the parties up to the degree of first cousin, inclusively; (3) if in the year preceding the challenge criminal proceedings have been taken between them and one of the parties or his or her wife or husband or relatives or allies in line direct; (4) if a civil action be pending between them and one of the parties or the wife or husband of either of them; (5) if they have given a written opinion in the matter; (6) if they are the employers or workmen of one of the parties in the case. The party who desires to challenge a councilor is bound to make the challenge and explain its motives by means of a declaration bearing his signature and delivered by him to the secretary of the council, for which a receipt shall be given to him.

ART. 36. The duties of councilors are absolutely gratuitous with regard to the parties. The councilors can not claim any fee for any of the duties performed by them.

ART. 37. All documents, judgments, and acts required for the execution thereof must be engrossed on stamped paper. Mention of the registration is stamped on the original document at the time. The foregoing provisions are applicable to cases carried to appeal or before the court of cassation. The party nonsuited is condemned in costs payable to the treasury.

ART. 38. The competency of councils of prud'hommes is fixed, as regards work done in factories, in the locality where the factory is situate, and, as regards work done at home, in the place where the engagement was contracted.

ART. 39. In urgent cases councils of prud'hommes can order such measures to be taken as to them may seem requisite in order to prevent any goods or objects in respect of which the application has been made from being seized, removed, or damaged.

ART. 40. Articles 5, 7, 10–15, 18–22, 28, 29, 31–43, 46, 47, 54, 55, 452–460, 474, and 480 of the code of civil procedure and articles 7, 8, 11, 12, and 13 of the law of May 25, 1838, are applicable to the jurisdiction of councilors in all that is not contrary to the provisions of the present law.

SECTION III.—REGULATIONS OF COUNCILS OF PRUD'HOMMES.

ART. 41. Every member of a council of prud'hommes who, without legitimate reason and after having been duly notified, shall refuse to render the service he is called upon to perform shall be dismissed from the council.

ART. 42. The president specifies the refusal to serve in an official report containing the decision of the committee after the councilor has been previously heard upon the matter or duly summoned to appear. If the council does not give an opinion within one month of the date of convocation, the president shall mention this omission in the official report sent by him to the prefect.

ART. 43. On the receipt of the official report, the dismissal is decreed by the prefect whether the council has deliberated or not. In case of dispute, the minister of commerce and industry finally decides the point, with right of appeal to the council of State on the ground of *ultra vires*.

ART. 44. Every member of a council of prud'hommes who shall have seriously neglected his duties in the exercise of his office shall be called before the council to explain the act with which he is charged. If the council does not express its opinion within one month of the date of convocation, mention shall be made in the official report addressed by the president to the prefect.

ART. 45. The official report is transmitted by the prefect, together with his opinion thereon, to the minister of commerce.

ART. 46. The following penalties may be pronounced: (1) censure, (2) suspension for a period not exceeding six months, and (3) forfeiture of office.

ART. 47. Censure and suspension may be pronounced by means of notice given by the minister of commerce. Forfeiture is pronounced by ministerial decree.

ART. 48. Every councilor duly elected who declines to be installed or who has retired by virtue of article 41 can not be reëlected for the same duties during six years from the date of the decree of forfeiture.

ART. 49. In case of a charge of prevarication against any members of the council of prud'hommes, proceedings against them shall be taken in the form prescribed with respect to judges by article 483 of the code of criminal inquiry.

ART. 50. Articles 4 and 5 of the civil code, articles 505–507 of the code of civil procedure, and articles 126 and 185 of the penal code are applicable to members of a council of prud'hommes.

ART. 51. Councils of prud'hommes may be dissolved by decree delivered on the initiative of the minister of commerce. In such cases the general elections shall take place within one month from the date of the decree of dissolution. Councils of prud'hommes may also be suppressed by decree delivered according to the regulations of public administration.

SECTION IV.—GENERAL PROVISIONS.

ART. 52. Every council of prud'hommes shall prepare in general meeting regulations for its own management. These regulations only become valid after they have been approved by the minister of commerce.

ART. 53. Councils of prud'hommes assemble in general meeting whenever the request is made by the superior authority by one-half their number plus one of the members in active service, or when the president considers it to be necessary. The official report of each meeting is transmitted within a fortnight by the president to the minister of commerce.

ART. 54. Members of councils of prud'hommes wear while on duty, either during the sittings or elsewhere, the distinctive badge specified by the order of November 12, 1828.

ART. 55. Secretaries to councils of prud'hommes are remunerated at the following rates: For each notice to appear before the council (not including postage), 3 cents; for each page of certified-copy documents delivered by them containing twenty lines on each page and twelve syllables in each line, 8 cents; for the certified copy, if required by the party, of the official report stating that the parties could not agree, and which shall mention summarily that they could not come to terms, 16 cents; for the notice by registered letter, 12 cents. The cost of paper, account books, and prepayments shall be paid by the secretary. The secretary shall receive direct from the parties the fees allowed, including those for certified copies delivered by him.

ART. 56. In case the services of process-servers be required, they shall receive for notifying a judgment 35 cents; if at a distance of 5 kilometers between their office and the place where the judgment has to be notified, they shall receive 20 cents there and back. For copies of documents which may be supplied with the copy of judgment they shall receive for each page of certified copy of twenty lines to the page and twelve syllables to the line 4 cents.

ART. 57. Witnesses giving evidence, who ask for it, are allowed by the council 3 francs as compensation for loss of time. Witnesses who reside out of the district at a distance of more than 25 and less than 50 kilometers are allowed 6 francs for every 10 kilometers or fraction thereof; beyond 50 kilometers they receive 6 francs for every 50 kilometers or fraction thereof.

ART. 58. Every secretary or *huissier* (process-server) employed by the councils proved to have charged higher rates than those allowed them is punished for extortion.

SECTION V.—EXPENSES OF COUNCILS OF PRUD'HOMMES.

ART. 59. The premises required by councils of prud'hommes are to be provided by the town where the council is established.

ART. 60. The charges obligatory upon the districts comprised in the jurisdiction of a council of prud'hommes are the following: (1) Expenses of founding the council, (2) purchase of badges, (3) fuel, etc., (4) lighting and petty expenses, (5) costs of elections.

ART. 61. The president of each council of prud'hommes shall, during the month of December, each year submit for the approval of the prefect of the department the accounts of expenditure set forth in the preceding article.

FRENCH SAVINGS BANKS.

[Inclosure 8 in Consul Loomis's report.—From the Bulletin de Statistiques.—Translation.]

NATIONAL SAVINGS BANKS, 1890.

The results obtained last year were still more important than those of 1889, and, generally speaking, it may be said that 1890 has marked the highest aggregate of deposits in the State Savings Bank since its foundation.

The institution of branch banks in a certain number of provinces, not taking into account the normal progress of the system throughout the country, has given special activity to the transactions in these provinces and has contributed in a considerable degree to the great development demonstrated in 1890.

First, as regards the annual statistics of the bank since its foundation.

Table showing general statement of transactions.

Year.	Post-offices corresponding with the National Savings Bank.	Accounts open on December 31.	Sums due to depositors on December 31, with interest thereon.	Average credit to each account on December 31.	Relative cost of administration with regard to the amount due to depositors on December 31.
	Number.	*Number.*	*Francs.*	*Francs.*	*Centimes.*
1882	6,024	211,580	47,601,639	224.97	76
1883	6,193	375,838	77,431,541	206.05	62
1884	6,408	541,323	115,408,034	213.22	58
1885	6,620	692,582	154,155,572	222.59	56
1886	6,649	845,053	190,674,127	225.63	61
1887	6,712	979,597	223,519,666	228.17	56
1888	6,765	1,129,584	266,788,603	236.08	53
1889	6,792	1,301,743	322,073,913	255.09	49
1890	6,817	1,604,688	413,439,049	274.76	47

Last year 1,949,371 deposits, representing a total sum of 261,999,132 francs, and 738,561 withdrawals, representing 191,521,015 francs, were effected. The net excess of the deposits over the withdrawals was therefore 70,478,117 francs.

The first deposits have never been so numerous nor so considerable as in 1890, as may be seen by the following table:

Year	First deposits.		Average amount of deposit.
	Number.	Amount.	
		Francs.	*Francs.*
1882	227,438	47,606,879.75	210
1883	207,827	40,440,833.07	194
1884	222,159	46,780,639.82	210
1885	221,107	52,185,749.17	236
1886	239,502	58,522,168.38	244
1887	236,888	58,640,041.71	247
1888	261,966	67,573,159.67	257
1889	293,129	78,220,984.52	266
1890	384,847	100,973,521.33	289
Total	2,258,863	550,943,977.22	243

The sums to the credit of depositors were as follows:

		Francs.
Credited to general account of depositors on December 31, 1889		332,073,912.70
	Francs.	
Excess of receipts on December 31, 1890	70,478,117.00	
Capitalized interest to the credit of depositors during 1890.	10,887,019.00	
		81,365,136.00
Sums to the credit of depositors on December 31, 1890		413,439,048.70

The assets of the bank on December 31, 1890, are represented by French Government securities, the property of the bank; by the balance of its current account, with interest, at the deposit office; by the value of the real estate purchased and fitted up; and, finally, by the amount of its transactions with the treasury at the commencement of 1891, such transactions relating in reality to 1890.

On December 31, 1890, the National Savings Bank held in French Government securities a capital of 366,384,471.41 francs, represented by—

	Francs.
192,250 francs of 4 per cent rentes	4,504,903.54
2,914,566 francs of 3 per cent perpetual rentes	87,362,683.30
7,357,530 francs of 3 per cent redeemable rentes	205,800,427.30
2,738,000 francs of rentes in treasury debentures	68,716,457.32
Total	366,384,471.41
Balance of the current account with interest at the deposit office	46,533,873.67
Total assets of the bank	412,918,345.08

The revenues of the National Savings Bank for 1890 amounted to 13,733,123.71 francs, viz:

	Francs.
Interest paid by the deposit office on capital invested in current account	1,475,676.11
Arrears of rentes purchased for the account of the National Savings Bank, coupons of April, July, and October, 1890, and January, 1891	12,055,515.60
Redemption premiums on the 3 per cent rentes	200,670.30
Sundries (sale of documents, etc)	1,261.70
Total	13,733,123.71
Capitalized interest to the credit of depositors in 1890 to be deducted	10,887,019.23
Balance of revenue applicable to administrative purposes	2,846,104.48

The expenses for the year 1890 amounted to 2,084,398.29 francs, as follows:

	Francs.
Salaries	1,552,869.34
Stationery, furniture, etc	337,937.17
Purchase of premises in the Rue St. Romain	138,500.00
Incidental expenses	25,093.14
Expenses relating to accounts closed	29,998.64
Total	2,084,398.29

And, as the revenue applicable to administrative expenses has been settled at 2,846,104.48 francs, the bonus realized in 1890 amounts to 761,706.19 francs.

The current account with the deposit office has been debited with the amount of profits realized during 1884–'89, viz, 1,556,337.05 francs, inclusive of interest (49,995.11 francs).

The real estate account has been debited with a sum of 958,458.64 francs, representing the sums paid from 1890 to 1891 for the purchase and fitting up of premises.

The figures 2,514,995.69 francs are thus obtained. If to these figures be added the net bonus of 1890, viz, 712,711.08 francs, and the expenses paid out of the 1890 accounts for the purchase and fitting up of the premises, viz, 138,500 francs, a total of 851,211.08 francs is obtained, which, being added to the preceding sum, brings the amount up to 3,366,206.77 francs, the state of the two endowments on June 30, 1891, at which date the account for 1890 closed.

PRIVATE SAVINGS BANKS.

In 1891 the savings banks then open, together with their 1,055 branches or auxiliary offices and the 410 collectors employed, delivered 534,865 new bank books and received 3,531,622 deposits, amounting in the aggregate to 869,476,090 francs.

They capitalized for the benefit of the depositors interest to the amount of 100,944,027 francs. They paid off 333,294 accounts and paid out 2,298,551 sums amounting to 739,023,-848 francs, nearly all coin. They employed 18,939,859 francs for the purchase of 687,178 francs of rentes for the account of the depositors. Upon this sum the voluntary purchases amounted to 631,750 francs of rentes, corresponding to a capital of 17,251,118 francs. The rate of purchase represents an average revenue of 3.66 per cent.

The payments of all kinds, therefore, absorbed 757,963,707 francs, instead of 683,686,485 francs as in 1889, equal to a surplus of 74,277,223 francs.

The total receipts (including interest, credit of transferred accounts, arrears of rentes collected by the banks, and the capitalized interest in favor of depositors), which were 872,068,495 francs in 1889, rose in 1890 to 985,338,616 francs.

On December 31 the private savings banks held 2,911,722,358 francs on deposit for the account of 5,761,408 depositors, making an average of 505.38 francs per depositor.

The latter figures represent, with regard to the population, 1 depositor to 6.63 inhabitants, or 151 depositors per 1,000 and 76.19 francs for each inhabitant.

At the same period the personal estate of private savings banks amounted to 73,351,677 francs, invested principally in rentes, in premises intended to be used for carrying on their business, and in current account at the deposit office.

The bonuses arising from the difference of 0.25 or 0.5 per cent between the interest received by the savings banks from the deposit office at the rate of 4 per cent and that which they allowed to depositors at 3.75 or 3.5 per cent (the maximum and minimum rates) form four-fifths of their annual receipts. In 1890 these amounted to 9,670,301 francs. As is shown in the following table, the savings-bank accounts of above 1,000 francs alone produced this sum. The smaller accounts caused the loss of 2,592,907 francs, but this sum is reduced to 1,525,903 francs by reason of the profit of 1,067,004 francs produced almost exclusively by the accounts of 501 to 1,000 francs:

Value of accounts.	Corresponding bonuses.	Corresponding expenses.	Profit.	Loss.
	Francs.	*Francs.*	*Francs.*	*Francs.*
Less than 20 francs	52,218.66	1,633,509.76		1,581,291.10
21 to 100 francs	173,095.20	944,955.09		771,859.89
101 to 200 francs	240,786.06	480,542.20		239,756.14
201 to 500 francs	817,125.39	698,009.79	119,115.60	
501 to 1,000 francs	1,575,263.04	627,374.54	947,888.50	
Total of accounts under 1,000 francs	2,858,488.35	4,384,391.38	1,067,004.10	2,592,907.13
Losses on these accounts				1,525,903.03
Accounts above 1,000 francs	6,811,643.70	1,177,439.73	5,634,203.97	
Grand total	9,670,132.05	5,561,831.11	4,108,300.94	

Profiting by the authorization given by virtue of the order of June 3, 1829, and the law of June 5, 1835, savings banks deposit the funds collected by them in current account at the deposit office, which, by virtue of the law of March, 31, 1837, was charged with the administration of such accounts under the guaranty of the public treasury and the surveyance of the special commission instituted by the law of April 28, 1816.

The total of the sums due by the deposit office on December 31, 1890, to private savings banks in France, Algeria, and the colonies, both for funds belonging to the depositors and that portion of the personal estate of the banks left in current account, amounted to 2,960,317,034 francs, of which 2,953,007,251 francs were due to savings banks of Paris and the provinces and 5,231,312 francs to those in Algeria.

To represent these funds the deposit office held for the special account of savings banks the following securities:

	Francs.
3 per cent original rentes	1,093,749,313.93
3 per cent redeemable rentes:	
Transfer of 1879	86,796,073.75
Consolidation of 1882	1,145,173,750.21
Purchased on stock exchange	97,595,298.16
4½ per cent rentes	18,875,112.75
Treasury debentures, conversion of the Morgan loan (48 debenture bonds)	265,322,471.30
Railway debenture bonds, Paris to Orsay (588 debentures)	590,286.00
Railway debenture bonds of 500 francs (28,481 debentures)	9,458,543.26
Treasury debentures, 4 per cent (1,500 debentures)	15,120,000.00
Treasury debentures (263,800 debentures)	131,980,000.00
Amount of the current account with the treasury	95,756,964.43
Total	2,960,337,813.79

The revenue and rate of interest on the securities in hand and in current account in 1890 were:

Description.	Revenue.	Rate of interest.
	Francs.	*Per cent.*
3 per cent rentes	40,549,012.00	3.707
Redeemable 3 per cent rentes	3,475,653.75	4.004
Redeemable 3 per cent rentes purchased on stock exchange	3,273,106.75	3.8886
Redeemable 3 per cent rentes (consolidation of 1882)	44,531,479.23	3.3537
4½ per cent rentes	745,997.00	3.9522
Treasury debentures	10,546,027.84	3.9047
Railway debentures:		
Of 500 francs	410,126.40	4.356
Paris to Orsay	26,784.00	4.5874
Treasury debentures at short term, 4 per cent	600,000.00	3.9680
Treasury debentures (law of July, 1885)	5,276,000.00	4
Securities in hand	109,434,186.97	3.8008
Account current with treasury	1,915,139.28	2
Total	111,349,326.25	3.7613

The interest allowed by the deposit office to the savings banks amounted to 112,478,256 francs, and was paid on the following:

	Francs.
On the produce of invested capital	105,744,998
By interest on the fund in current account with the treasury	3,788,930
On the revenues of the special reserve in the deposit office for savings banks	1,832,168
For amount deducted from the capital of the said reserve	1,001,750
By means of a supplementary advance by the treasury	110,410

Such a position entirely justifies the reduction of the rate of interest made up to private savings banks by the deposit office, in accordance with the provisions of the finances bill of December 26, 1890—3.75 per cent from and after January 1, 1891. This measure was favorably received by the depositors, who recognized its legality. The savings banks which recognized the fact consider that if this reduction of interest had been immediately granted it would, on the contrary, have brought about a profound disturbance in their transactions.

The transactions of the savings banks in 1890 are characterized by the very great and simultaneous development of the deposits (869,000,000 francs) and the withdrawals (739,000,000 francs). The balance due to depositors on December 31 rose proportionately, viz, to more than 2,911,000,000 francs. But the marked progress observed is only due to the excess of deposits over the withdrawals of all kinds to the extent of about one-half, the surplus being derived from the capitalization of interest.

The new savings-bank books and those in circulation on December 31 have also participated in this progressive movement in a more notable proportion than formerly. Depositors in private savings banks represent at present one-sixth of the population.

It may be said that only the purchase of rentes made at the request of depositors remains stationary. Nevertheless, during the years in which the rentes produced a very remunerative revenue—much superior to the interest paid by the savings banks—the sums employed in this sort of investment were not so considerable; they were even less. These institutions do not, therefore, appear likely to place among their depositors a large amount of rentes. Their object, which is to receive deposits on current accounts, does not seem to be subject to modification.

Notwithstanding the high figures attained by the deposits and withdrawals, transactions of small importance do none the less continue to be very numerous.

Almost three-fourths of such deposits and two-thirds of the withdrawals do not exceed 200 francs; from 1,001 to 2,000 francs hardly one-twentieth of the deposits and one-twelfth of the withdrawals take place, the latter being frequently effected in order to close the account entirely, either on account of death or for the purpose of investing the amount withdrawn in a definite manner. Those of 200 francs and under that sum represent more than half of the total—3,168,224 francs out of 5,761,408 francs. If the amount of the accounts above 1,000 francs, *i. e.*, nearly 2,036,000,000 francs, form two-thirds of the balance due to depositors, their number—121,644—is relatively restricted and scarcely represents one-fifth. It is the latter class of accounts which supply to the savings banks the annual resources with which they carry on their transactions.

SAVINGS BANKS ON DECEMBER 31, 1891.

Table showing the deposit and credit accounts of the post-office and private savings banks.

Description.	1891.*	1890.†	Increase.	
Post-office savings banks.	*Francs.*	*Francs.*	*Francs.*	*Per cent.*
Accounts opened with fresh depositors	420,000	348,847	71,153	20.4
Accounts existing on December 31, 1891	1,734,388	1,504,688	229,700	15.27
Deposits effected during the year	323,296,137	261,999,132	61,297,005	23.4
Balance due to depositors on October 31	505,760,011	413,439,049	92,439,049	22.3
Private savings banks.				
Accounts opened with fresh depositors	513,600	534,865	21,265	3.96
Accounts existing on December 31	5,936,825	5,761,408	175,417	3.05
Deposits effected during the year	835,894,734	869,476,090	33,581,356	3.86
Balance due to depositors on December 31	3,052,311,273	2,911,722,358	140,588,915	4.83

* Provisional statement. † Definitive statement.

PROPOSED FRENCH LAW ON EMPLOYERS' LIABILITY AND NATIONAL INSURANCE FUND AGAINST ACCIDENTS.

[Inclosure 9 in Consul Loomis's report.—Translation.]

SECTION I.—ENTERPRISES SUBJECT TO INSURANCE ACCIDENTS AND COMPENSATION.

ARTICLE. 1. All accidents happening by and during the performance of their duties to workmen and employés engaged in building works, factories, manufactories, yards, transport, loading and unloading of merchandise, public warehouses, mines, mining stores, quarries, and generally in all establishments or branches thereof in which explosive materials are manufactured or employed, or where use is made of steam engines, or machines worked by elementary power (air, water, gas, hot air, electricity, etc.), or by animals, give right in favor of the sufferer or his representatives to compensation, the importance and character of which are hereinafter determined. This provision is applicable to workmen and employés engaged in enterprises and works connected with the State, the departments, districts, and public establishments.

ART. 2. Employés and workmen whose wages exceed 2,000 francs only benefit by the provisions of this law up to that amount.

ART. 3. When the accident causes permanent and absolute incapacity to work, the sufferer is entitled to a life annuity equal to two-thirds of his annual wages. Blindness, the complete loss of the use of the limbs, or any incurable infirmity which renders the workman unable to work and provide for his maintenance are considered as permanent and absolute incapacity to work.

ART. 4. When the accident causes permanent partial incapacity, the compensation allowed to sufferers by the preceding article is diminished in proportion to the capacity to work still retained.

ART. 5. At the time of the final settlement of the compensation the sufferer may demand that one-fourth of the capital required to constitute a life annuity shall be paid him in cash. The sufferer may also demand that the capital required for the constitution of his pension, reduced or not, as provided by the preceding paragraphs, shall be employed up to one-half at least for the constitution of a life annuity in favor of his wife.

ART. 6. When the accident is fatal the compensation shall be composed of—

(1) The value of twenty days' pay for funeral expenses. This sum is not to exceed 100 francs, and shall be paid to the representatives within eight days from the date of death. It may be advanced by the head of the establishment, who shall be reimbursed by the district.

(2) A pension paid to the persons hereafter indicated from the date of death under the following conditions:

(*a*) A life annuity equal to 20 per cent of the deceased's annual wages in favor of the conjoint survivor, his widow, not divorced nor against whom judicial separation has been pronounced, on condition that the marriage had been contracted previous to the accident.

(*b*) For the children or orphans of father or mother up to the full age of 16 years an annuity calculated on the deceased's annual wages at the rate of 15 per cent if there be one child only, 25 per cent if there be two, 35 per cent if there be three, and 40 per cent if there be four or more children. The annuity to each of the children, orphans of both parents, shall be 20 per cent of the wages. Illegitimate children who have been recognized previous to the accident have a right to the same annuities and come under the same conditions as the legitimate offspring. The total annuities granted to the children can not exceed 40 per cent of the wages in the first case nor 60 per cent in the second. Each of the above annuities may be proportionately reduced according to circumstances.

(*c*) If the deceased be unmarried or leaves neither widow nor child, a life annuity to such of his ascendants who were supported by him shall be paid at the rate of 10 per cent of his annual wages on condition that the total amount does not exceed 20 per cent.

ART. 7. The representatives of a foreign workman who at the time of the accident did not reside in France are not allowed to claim under the foregoing provisions, unless they can prove that in the country of which the sufferer was a native French citizens enjoy such privilege without condition of residence.

ART. 8. In all accidents which have caused incapacity to work during more than three days, the head of the establishment shall bear the expense of medical attendance and medicines. He shall also pay during the illness arising from the accident a sum equal to one-half of the sufferer's wages, on condition that such sum does not exceed 3.50 francs per diem. The head of the establishment is only responsible for this compensation for a period not exceeding thirty days from the date of the accident. After the thirtieth day, if the sufferer be not in a fit state to return to his work, the temporary indemnity above provided and cost of attendance and medicines shall be at the charge of the district. The head of the establishment shall, however, continue to provide them up to the time when a definite decision has been pronounced by competent jurisdiction, but as an advance only and at the expense of the district, which shall reimburse him. This temporary compensation shall be paid from the date of the accident at the usual period of payment of wages and at latest every fifteen days.

ART. 9. Heads of establishments may relieve themselves of the obligation to pay the cost of illness and temporary compensation during the first thirty days following the accident if they can prove—

(1) That they have at their own cost founded special benefit funds, or have associated their workmen to approved or authorized mutual aid societies.

(2) That such funds or societies are bound to pay, independently of the treatment of the wounded, a compensation equal to one-half of their daily wages, on condition that this indemnity shall not be obliged to exceed 3.50 francs per diem during the illness, or at least during the first thirty days.

ART. 10. The articles of association of private benefit societies mentioned in the foregoing article shall be drawn up in accordance with the laws relating to mutual aid societies and professional syndicates. A regulation of the public administrative authorities shall settle the modifications to be made in the existing articles of association of mutual aid societies, in order to adapt them to the new powers conferred on them.

SECTION II.—AMOUNT OF WAGES TO BE TAKEN AS A BASIS FOR FIXING ANNUITIES AND COMPENSATION.

ART. 11. The annual wages to workmen employed in the works during the twelve months preceding the accident shall be understood to include the actual remuneration granted him by the head of the establishment either in money or in kind.

For those who have been employed less than twelve months prior to the accident, the annual wages shall include the actual remuneration they have received since they were engaged, increased by the average pay that workmen of the same class have received during the period required to complete these twelve months. In industries where the work is intermittent the annual wages are calculated equally upon the active period of work and the earnings of the workmen during the rest of the year. If a portion of the wages be paid in kind, the valuation shall be estimated according to the customs and tariffs of the place. In the case of workmen under 18 years of age or apprentices, the amount of compensation to be paid, as provided by articles 3–6, shall not be less than the lowest wages paid to valid workmen of the same class employed on the works.

The temporary compensation and funeral expenses shall in every case be calculated upon the daily pay of the sufferer at the time the accident occurred.

Disputes between sufferers from accidents, the heads of establishments, or the district with regard to temporary compensation, medical attendance, cost of medicines, and funeral expenses shall be decided without appeal by the justice of the peace of the district where the accident occurred.

With regard to the other compensations provided for by the present law, within eight days of the reception of the documents relating to the injury the president of the civil tribunal shall convene the injured person or his representative, the head of the establishment, and the representative of the district. If the parties agree, the amount of the compensation shall be definitely settled by an order of the president, who delivers an act to this effect. When the parties do not agree, the dispute shall be settled at the chief town of the district where the accident has occurred by a court composed of three heads of establishments and three workmen assembled before the president of the tribunal or, in his absence, before the judge appointed by him.

GERMAN LABOR STATISTICS.

TRANSMITTED BY CONSUL-GENERAL EDWARDS, OF BERLIN.

[From the Vossische Zeitung of August 23.—Translation.]

It is the incontestable service of the Hirsch-Dunker German trade unions which called attention to the necessity of introducing a system of workingmen's statistics and which began the collection of these statistics. Already in the model statutes of the German trade unions in October, 1868, the introduction and continuance of the collection of workingmen's statistics was proposed and agreed to. The novelty of the undertaking and the difficulties with which the trades unions had to contend at first permitted these ideas to be realized only in individual cases. Since 1880, however, the organization of German trade unions has been publishing statistics based upon information received from the workingmen themselves.

Repeatedly, from official quarters also, reference has been made to the importance of this publication, and at the present moment, when the obtaining of workingmen's statistics for the entire Empire is being planned by the officials, the efforts of the leaders of the trades unions, who in 1868, *i. e.*, twenty-four years ago, recognized the necessity of such workingmen's statistics and twelve years ago began to collect the same, deserve special recognition and respect. Up to 1886 the tables appeared at first quarterly, afterwards semiannually. In the year 1887 an extension of the plan was attempted, namely, the collection of statistics in regard to expenses, as well as in regard to the conditions of labor and receipts. But as the information was difficult of obtainment, and as that received was mostly unclear, the central authorities decided not to compile and publish the material, and gave the other figures for the entire year 1887, chiefly on the strength of earlier information.

The partial failure of the year 1887 seemed for a time to have frightened the central council or the trades unions from trying to collect these statistics; at any rate, for the years 1888, 1889, and 1890 these figures were not published. A few days ago, though, the statistics for 1891 appeared, and we greet them with joy, as the organization has again given its attention to this matter. In the question papers sent to the unions the extension of the 1887 statistics is omitted, and it is left to the unions to make voluntary statements in regard to the matter of expenses, as well as in regard to wages, labor, and income conditions (no special questions being asked). These question papers have been filled out by 924 local unions; as there are 1,313 unions in the organization, it is seen that 389 unions failed to respond to the request, which is, in the interest of the matter, to be regretted. Several local unions have, however, made separate statements for the different professions and callings represented in them, so that in all 1,041 statements are given. The material is therefore very extensive and entirely suited to give a correct idea in regard to the conditions of labor and, with the use of proper caution, to substantiate conclusions in regard to the differences existing between different professional groups and between members of the same groups in different localities. But it must not be forgotten that such statistics are based largely upon estimates which are more or less subjective, and that the various compositions of the clubs and their participation in the preparation of the statistics play a great rôle. Thus it is stated in explanation of the high income figures of merchants "that only the better salaried members filled out the formulas for the statistics, the smaller paid—the great majority—from false pride, having left the question papers unanswered." The chief effect is the tendency to reduce wages. Nevertheless, the national economist and social politician, not less than the employer and employé, can learn much from these statistics, especially from the voluntary statements in regard to expenses, concerning which we give below a condensed statement, the presentation of the matter in tabular form being impossible.

The wage conditions, of which the statistics principally treat, are very different. The highest weekly wages received by workingmen in the most extensively represented group—

machine-builders and metal-workers (306 unions)—was 45 marks in Königshütte; the lowest was in Sprottau—6 marks. In one Silesian town, therefore, a machine-builder earns seven and one-half times as much as in one of the others. But these are only the wage extremes, for Sprottau gives the wages as 6 to 15 marks and Königshütte as 15 to 45 marks. Yet the highest wages in the one place corresponds exactly with the lowest in the other. In piecework the wages of a machine-builder in Mülheim, on the Ruhr, go as high as 48 marks. No other trade gives nearly so high wages. The joiners rise in average weekly earnings to 34 marks in Barleben, the miners and foundry employés to 30 marks in Gelsenkirchen, the builders to 26 marks in Potsdam. Most trade groups have a maximum average of 24 marks—loom workers up to 19.5 marks and cigar-makers 18 marks. Piecework wages go as high as 36 marks with stone masons and only 20 marks with loom-workers. The weekly wages are lowest with loom-workers in Waldenburg, where they amount to 4 to 8 marks. That best loom-workers can earn only 8 marks per week confirms the sad statements published in regard to need in the Silesian weaving districts. In Kirchenlamitz, in Bavaria, the loom-workers in weekly wages, as well as in piece wages, earn only 6 marks. Of the shoemakers and tailors little can be said; they usually receive free board and lodging. As wages the tailors in Waldmichaelbach, in Hesse, received, in addition to board, etc., only 2 marks per week; carpenters in Allenstein, East Prussia, only 2.25 marks.

Much less than for workmen are the wages of grown working women. The maximum weekly wages of females is 18 marks for quilters; then comes 16 marks in the graphic employments in Gera and 15 marks for the female machine-builders in Duisburg and Hamburg. The minimum weekly wages for females in most employments is 3 marks—the female machine-builders in Dülken and the seamstresses in Stralsund 2 marks, and the pottery-working women in Waldenburg 1 mark. It seems to us utterly beyond belief that a woman or girl must work a whole week for 1 mark. Concerning the income and expense conditions of the potters in Waldenburg the voluntary statements show: "A potter with a family of six heads earns, on the average, 15 marks per week. Of this he requires for the absolute necessities of life 12 marks (1.71 marks per diem); rent, 1.73 marks; tax, 30 pfennigs; fire, 75 pfennigs. So every week there remains over 22 pfennigs (5 cents) for his other requirements, such as clothing, pleasure, etc. Either, therefore, the wife must also work, or, if this is not possible, she must obtain bad food." This very sad picture here unrolled requires no further comment.

The wage rates of young workmen can be considered here only as far as the maximum is concerned. The highest wages is reached by plasterers in Varnhald, in Baden, with 16.8 marks, by quilters in Berlin, and machine-builders in different places, with 15 marks; while the tailors in Berlin and Hotzenbach receive at the highest 6 marks.

Worthy of notice are the statements in regard to the change of wages. Every local union was asked if wages were rising, falling, or at a standstill. Only 8 unions answered that there was an increase, 230 chronicled a decrease, and 641 reported no change. The percentage of unions reporting a fall of wages is greatest among the miners (70 per cent), then among the loom-workers (44 per cent), the carpenters and builders (33 per cent), the graphic employment (27 per cent), and the machine-builders (25 per cent). Of the cigar-makers and stone masons 12.5 and 11 per cent, respectively, reported falling wages. By the 6 local unions of ship carpenters wages were quoted as at a standstill. Exact figures in regard to the rise or fall of wages can not be given, as, as has been said, the figures for the three preceding years are lacking. If these statistics, as we hope, are now to appear regularly again, the future annual reports will supply valuable material on this point, and the importance of such material increases from year to year. The official workingmen's statistics will depend much upon these private statistics and will utilize the good and bad experiences of the same.

SPLIT-WOOD INDUSTRY.

REPORT BY CONSUL-GENERAL EDWARDS, OF BERLIN.

I have the honor to transmit a letter, together with a translation thereof, from Julius Fleischmann, esq., of Sonneberg, in which he expresses a wish to develop the split-wood industry in the United States. If Mr. Fleischmann's letter could be published in such a manner as to reach those interested in the stave trade in the United States and at whose instance the stave-trade circular was prepared, it might lead to practical results of great benefit to our split-wood interests, especially the stave branch thereof.

W. H. EDWARDS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, December 6, 1892.

MR. FLEISCHMANN TO CONSUL-GENERAL EDWARDS.

[Inclosure in Consul-General Edwards's report.—Translation.]

BERLIN, *November 27, 1892.*

It is known to me that the United States have for years been giving the greatest attention to the Austro-Hungarian-Slavonian wood industry, especially to split-wood articles—staves and floor materials.

The split-wood industry is one of the most important and profitable of all the industries of Austria-Hungary, as heretofore that country has had the monopoly in this industry. Undoubtedly, the American Government knows this well enough to understand the advantage which would accrue from the introduction of such an industry into the United States.

The forest wealth of the United States would then for the first time have a practical value, and a very considerable number of American workmen would find paying employment. What has so far been done in this matter by Americans is in every way insufficient and defective. The only way for the United States to capture the world's market is to adopt the Slavonian system.

If I can secure the necessary encouragement, I am willing to introduce this industry into the United States. I can supply laborers trained in the industry. If the matter is favorably considered, the following concessions would have to be made to me in advance:

(1) For my information I beg for a report on the oak forests in the entire United States.

(2) I beg to be supplied with the names of suitable persons who can take in hand as contractors the production and to be put in connection with these persons or with great capitalists.

(3) I beg to be permitted to at once bring from 50 to 100 well-schooled laborers, with their families, from Slavonia to the United States as an instructing force.

As America preëminently favors the introduction of new industries, I beg you not to allow my proposal to go unconsidered, but to recommend it in the proper quarter.

I will go at the beginning of December to America, and all communications can be addressed to me in care of the imperial German consul-general in New York, Mr. August Fiegel.

Most respectfully,

JULIUS FLEISCHMANN,
Sonneberg, Germany.

Reference:
PRIVY COUNCILOR OESCHELHÄUSER,
Member of Parliament from Dessau, Hotel Bristol, Berlin.

MINES OF SIERRA MOJADA.

REPORT BY CONSUL FECHET, OF PIEDRAS NEGRAS.

The mining district of Sierra Mojada is the largest silver-lead (carbonates) ore producing camp in the world, with the probable exception of the Leadville region of Colorado. It is preëminently the "lead camp" of Mexico, and a very large percentage of its tonnage output is exported to the United States as raw ores for treatment.

GEOGRAPHICAL SITUATION.

The town or mining camp of Sierra Mojada is situated in the State of Coahuila, in 27° 24′ north latitude and 26° 40′ longitude west of Washington and 103° 43′ west of Greenwich, and is the present terminus of the Mexican Northern Railroad.

The camp lies about 67 miles in an air line northeast of Escalon station, on the Mexican Central Railroad; but by the line of the Mexican Northern Railroad, which makes a detour to turn the mountain range, it is 125 kilometers, or 78 miles. The Mexican International Railway (Huntington system) has commenced construction upon a line from Monclova, on the main line, to Sierra Mojada. This line will have a total length of 155 miles, and will be rapidly pushed forward to completion. The Monterey and Mexican Gulf road will also construct a line to Sierra Mojada from Treviño station, the junction of the Mexican International Railroad and the Monterey and Mexican Gulf. The British Mexican Railroad has completed the grading of the first 30 miles of a new line which is to run from Jimenez, on the Mexican Central Railroad, to Sierra Mojada, and the rails for the entire line are purchased. Within a year there will certainly be two, and probably four, railroads entering Sierra Mojada and forming parts of the great trunk systems of Mexico, thus insuring most ample transportation facilities for the large daily ore output of the camp.

The nearest towns are Jimenez, in the State of Chihuahua, about 120 miles west; and Cuatro Cienegas, in the State of Coahuila, 110 miles eastward. Between these points, east and west of Sierra Mojada and the Rio Grande River on the north and the fertile lands of the Laguna region, 120 miles south, the country is a vast desert, almost uninhabited and but little known. The vast region is destitute of water, save at isolated points.

HISTORY.

The history of Sierra Mojada must necessarily be brief, as the first settlement was made less than fifteen years ago, and there is an absence of the startling incidents characterizing the early history of mining camps in the United States.

Twenty years ago the section of country now comprising the mining district of Sierra Mojada was known only to the smugglers who sought the remote solitudes of these mountains for the protection of their traffic. During the pursuit of a band of these smugglers in the year 1878 by customs guards the discovery of silver-bearing ore was made by Nestor Ariola, a member of the pursuing party. The first "find" was made upon a hill called "La Blanca," which forms a buttress to the Sierra Mojada at the point of its highest elevation.

This first discovery proved to be a small chamber, or pocket, and was soon exhausted. All of the present prominent and paying properties are located within a mile of this first "discovery" of the camp.

Owing to the low grade of the ore, the scarcity of water, and the tedious and expensive methods of extracting the silver by the "hornos," or "adobe" furnace, there was little activity in mining until about the year 1886, when the Mexican Ore Company (an American organization with headquarters of company at El Paso, Texas), commenced to export the ore to the United States. Since the first shipment there has been a steady increase to the present time, when the daily shipments aggregate 500 tons, of which about one-half is exported to the United States for reduction treatment and the balance is shipped to the smelters at Monterey and San Luis Potosi.

The method of transportation prior to July, 1891, when the Mexican Northern Railroad was completed, was by mule teams, and for some years previous to the advent of the railroad there were from 8,000 to 10,000 mules engaged in this traffic. Now this number has been cut down to some 500 employed in hauling the ore from the mines to the railway. This latter number will be still more reduced as soon as the railway shall be completed directly to the mine dumps.

There are three mining zones in the municipality of Sierra Mojada, embracing 63,000 square meters and covering all the valuable territory now known in the district. The first concession for a mining zone was granted in the year 1888, the second in 1890, and the third in 1891. The granting of these mining zones has been a serious drawback and has retarded the rapid development of the camp. The private and individual prospector is debarred from prospecting or locating a mining claim within the conceded zones. Hence all claims have to be secured by purchase or lease from the concessionaires.

There are some thirty mines known to exist in the district, but only eleven are producing ores at the present writing. The output of the camp from the beginning up to October 1, 1892, approximates 500,000 short tons and 85,000 tons of silver-lead bullion, the product of the Esmeralda Smelting Company, the only smelter located at Sierra Mojada.

The inhabitants of the municipality of Sierra Mojada number about 8,000. Of this number the laborers engaged in mining and the industries consequent thereto aggregate about 40 per cent. With the exception of the immediate center of the town, the Esmeralda hacienda, the offices of mining companies, and railroad buildings, the town presents a very wretched appearance, which is in marked contrast to the older mining towns of Mexico, such as San Luis Potosi, Zacatecas, Pachuca, etc. The abodes of the poorer classes, about 80 per cent of the entire population, are mere hovels built of brush, old ore sacks, and all refuse material that may be acquired for nothing and made into a rude shelter. Many live in dugouts, or caves, dug in the sides of the many *arroyos*, or dry creeks. Improvement in the manner of living among this class is very slow.

TOPOGRAPHY.

The general conformation of the district is very simple. A valley commencing at the "Puerte de Oro" (Golden Gate), 13 miles east of the town of Sierra Mojada, runs nearly due west, with an average width of about 2 miles, and terminates about 8 miles west of Sierra Mojada camp in a cul-de-sac. The narrowest portion of the valley lies west of the town. This valley is bounded on the north by the Sierra Planchada and on the south by the Sierra Mojada range. Upon the northern slopes of the Sierra Mojada all of the mineral deposits so far discovered in the district are located. The lowest point of the valley (at the town) has an altitude of 4,825 feet above sea level. The mountain peaks, which are highest over the slopes where the largest mineral deposits have been found, attain an altitude of 2,500 feet above the valley, or 7,325 feet above sea level.

The general aspect of the mountains forming the Sierra Mojada range proper is very striking—along the summit a boldly scarped precipice of a general dull-gray color alternating with yellowish patches of color, where fresh surfaces have become exposed by recent falls of rock. This precipice, or escarpment, carries about one-third of the total height of the mountain above the valley, and is consequently about 800 feet in sheer height.

The face of the escarpment exhibits many prismatic columnar forms, a striking peculiarity of the limestone rocks of this region. Below the escarpment the hills are rounded into a series of deep alcoves and projecting buttresses, and are covered with a sparse vegetation. East and west of the highest portion of the range, which is about 3 miles long, the mountains are much lower, the rounded hills extend to the summits, and the sharp lines of the escarpment have disappeared.

The general appearance of the Sierra Planchada exhibits the same characteristics as that part of the Sierra Mojada last described.

GEOLOGY.

The prevailing rock formation of the Sierra Mojada can be observed all over the eastern part of northern Mexico, mainly a magnesian limestone of considerable thickness (about 2,000 feet), including some beds of calcareous sandstone and one horizon (near the bottom of the series) of calcareous conglomerate. Since this rock has been partially metamorphosed, to the almost entire extinction of fossils, its exact geologic age must be to some extent a matter of speculation. The fossils that have been found have been classified by Mexican paleontologists as cretaceous, and they have therefore assigned this formation to the Cretaceous period.

ORE DEPOSITS.

The ore deposits of Sierra Mojada are of a kind not often encountered in Mexico. As they are very different from the usual well-defined fissure veins to which Mexican mining experts and geologists are accustomed, they occasioned, at the time of their discovery, considerable difference of opinion as to the future value of the district.

About one-third of the way up the foothills of the Sierra Mojada are several bodies of altered and decomposed lime rock impregnated with ferruginous matter and containing silver and lead bearing minerals disseminated in great quantities through this mass or collected together in chambers or chimneys as segregations from the impregnated deposits. These deposits extend at about the same altitude all along the north flank of the Sierra Mojada for a distance of about 4 miles, everywhere more or less metalliferous, and everywhere presenting the same dominant characteristics of composition, with, however, some variations of strike and dip. These bodies of mineral are much softer and more friable than the inclosing rocks, and hence have been eaten away more by erosion. The country rock has thus often been left projecting above and below; that below is deeply iron stained in many places, and hence the ore deposits present a distinct outcrop throughout their length.

MINERALOGY.

The minerals found in these deposits are not numerous or varied. Silver occurs native and as chloride, bromide, and sulphide, all in small and rare specimens, not to mention its combinations with lead. Copper is found as carbonate (azurite) and very little pyrite. Lead occurs as carbonate, sulphate, and sulphide. Sulphur is found native in quite large masses and is generally amorphous.

In the early discoveries it was the prevailing opinion that there was no true vein, as only slight traces of regularity of formation were noticed, and these traces were classified as mere attempts at parallelism. Later discoveries have proven that there are two distinct and fairly well-defined veins. The copper found in this district is almost entirely confined to a distinct vein, having a dip of about 45° to the north, and carrying, in the western part of the known deposits, ores running from 60 to 200 ounces of silver per ton, the grade becoming lower to the eastern part. In the anticlinal contact dipping to the southeast the iron ore is lemnite with pyrolusite and psilomelane without copper ores and with lead carbonates carrying from 18 to 40 ounces of silver and from 20 to 50 per cent of lead per ton. Especially is this true in the eastern portion of the deposit; but in the western portion the lead decreases to from 10 to 20 per cent, while the amount of silver increases slightly. In the western portion of the known ore deposits the veins heretofore spoken of are more distinctly defined than in the eastern; but in all of the properties which are extensively worked the regularity of the deposit is such as to warrant the statement that two distinct veins exist throughout the known mineral zone, and their point of contact or apex is that portion generally lying nearest to the surface.

The metalliferous deposits are found with a covering or envelope of ferruginous clay and disintegrated, iron-stained limestone, sometimes impregnated with copper or lead.

This mineral belt has been explored for about 3 miles from west to east. The developments in the Fronteriza shaft, about half a mile east of the last discovery, will throw some light on the eastern limit or boundary of the ore deposits. There is also some development work in progress in the western portion of the district, the results of which will be awaited with much interest.

It is the prevailing and concurrent opinion of all mining experts who have made a careful study of the characteristics of the district that the limits of the mineral belt will be extended beyond the present known lines.

WORKING THE MINES.

The deposits are, as a whole, as might be anticipated, quite soft and in many cases even loose. The lead carbonates are "sand," solid and massive. The latter layers are the most compact of all, but it is seldom necessary to use powder to extract the mineral.

In the early days of the camp no mechanical appliances of any kind were employed except picks and crowbars. The ore, tumbled down in the working faces by bars or picks, was filled with bare hands or perhaps a horn spoon into leather or hide sacks and carried to the surface upon men's backs. In this very slow, laborious, and essentially primitive way many thousand tons of ore were mined. In the underground workings but little effort was made at regularity; the workings simply followed the richest streaks of the deposit, leaving irregular pillars surrounded by torturous passages that now and again opened into large chambers. Descents from one level to another were made by notched poles or inclined planes with rude steps cut from the more massive portions of the deposit or from the country rock. However, with the advent of American companies all this has changed, and the mines are now worked after the most approved methods with the latest improved machinery.

I believe no mine has reached a greater depth than 550 feet, but the lateral workings of the San Salvador and Esmeralda mines are considerable. The San Salvador is the largest producer, having an ore body about 140 feet wide and lateral extent not known. The output of this mine is about 400 tons daily. Then follow, in the order of their tonnage output, Encantada, Esmeralda, San José, Vita Rica, La Fortuna, Volcan, and several smaller mines in process of development and with a nominal output.

The average cost of mining and placing a ton of ore aboard the cars is about $5.80 in Mexican silver.

The work of mining is done by contract, the miners earning from 75 cents to $1.25 per day in Mexican silver, or, at the present rate of exchange, 48 to 80 cents per day in United States currency. These wages are considered very good for native Mexican miners.

The timbermen are mostly American or Cornish and receive from $3.50 to $4 in United States currency per day.

WATER SUPPLY.

During the early exploitation of this camp the want of water was most severely felt, and during the prevalence of the long droughts the people were forced to seek other localities and temporarily abandon the camp. The serious drawback on continuous work has been partly overcome by the construction of large reservoirs to catch and store the rainfall which, in this section, is abundant generally in May, June, and July and occasionally in February. The water thus secured is usually sufficient, with economy, for for present needs. In cases of very prolonged droughts the railroads can now be relied upon to haul water to camp.

At the old pueblo of Sierra Mojada a small supply of water for domestic purposes can be had by sinking wells to a depth of from 30 to 60 feet. With the exception of these wells of limited capacity, no water has been found in the valley, and no determined effort has, I believe, been made to secure any; and hence the problem of water supply sufficient to meet the needs of a large mining center has yet to be solved either by artesian wells or a more complete and extensive system of reservoirs.

The prevailing natural conditions for health are good. Lead-poisoning among the miners is frequent, and in the winter months some pneumonia occurs.

PERMANENCY OF DISTRICT.

The great deposits of lead carbonates that have made this camp so famous are now sufficiently developed that conclusions as to the permanency of this district can be drawn from actual conditions of development work. The ore reserves now in sight are sufficient to insure a steady production for the next ten years, if not for a longer period. The possibilities of the extension of the eastern and western limits of the mineral-bearing zone are great and may become a chief factor in the future of this camp. The question of the continuance of the deposits as depth is attained is still open. The deepest workings have reached about 500 feet below the surface. As a rule, at this depth massive iron ore replaces the limestone foot wall and the ore is of lower grade or ceases entirely. Many intelligent miners conversant with the geologic and mineralogic features of the district believe that when this iron bottom is pierced a second contact will be found more valuable than the first. It is also recognized as possible that the ores at the second contact will be refractory and will replace the valuable product that has made Sierra Mojada ores so well known to metallurgists.

An average analysis of lead ores of this camp will show about as follows: Lead, 30 per cent; silver, 35 ounces; iron, 15 per cent; silica, not to exceed 5 per cent; and balance lime rock.

Prior to the present United States tariff the output of the entire district was exported to the United States, save the relatively small tonnage smelted directly at the camp by the Esmeralda furnace, the only one in camp. Under the former tariff Sierra Mojada export ores entered the United States free of duty, as the silver component exceeded in value the lead component. Under our present tariff silver-lead ores pay a duty of 1½ cents per pound upon the weight of the lead component, provided the value of the silver exceeds that of the lead; otherwise the duty is levied on gross tonnage at $30 per ton. In consequence of this change of tariff, all ores exported from Mexico to the United States are either dry ores (silver) or silver-lead ores in which the value of silver exceeds that of the lead. Upon this last class the average duty (upon an average of 30 per cent of lead to the ton, or 600 pounds) is $9 per ton. The effect of the change in the tariff on Mexican ores has been to shut out ores high in lead and low in silver and to cause export shipments to be graded to a higher silver average per ton. This results in a decreased tonnage exported to the United States, but at the same time in an increased value of ore imported to the United States.

It is estimated that the Sierra Mojada district will export to the United States during the present fiscal year (July 1, 1892, to June 30, 1893) upwards of 70,000 tons of ore, upon which duties will approximate $630,000.

EUGENE O. FECHET,
Consul.

UNITED STATES CONSULATE,
Piedras Negras, October 24, 1892.

BRAZILIAN SUGAR CROP.

REPORT BY CONSUL STEVENS, OF PERNAMBUCO.

As the reciprocity agreement between the United States and Brazil is not a matter of political, but one of supreme commercial, importance, and as the sugar-production of this State and consular district bears upon this question and is one of general interest, I deem it but proper that I should, at the earliest moment practicable, convey to the Department the carefully estimated production of this home necessity for the incoming season 1892-'93. On account of the excessive and long-continued rains, its gathering and preparation for market is much delayed; still, enough is known, as some grinding has already commenced, to make a pretty close approximation of the season's production.

I append herewith the quantity of sugar produced in this State and the State of Alagoas for three years, and the amount exported during the same years. I regret that the statistics from Rio Grande do Norte and Ceara have not yet come to hand.

Table showing the production and exports of the State of Pernambuco.

Year.	Production.	Exports to—		Home consumption.
		United States.	Other countries.	
	Tons.	*Tons.*	*Tons.*	*Tons.*
1889–'90	110,260	13,747	3,442	93,073
1890–'91	154,786	46,760	15,401	92,625
1891–'92	135,945	38,876	13,059	84,010

It will be seen from the above table that the United States imported from this State 15½, 40, and 38 per cent, respectively, of the total production, and 80, 75, and 75 per cent, respectively, of the total exports.

Table showing the production and exports of the State of Alagoas.

Year.	Production.	Exports to—		Home consumption.
		United States.	Other countries.	
	Tons.	*Tons.*	*Tons.*	*Tons.*
1889–'90	30,647	8,032	....	....
1890–'91	40,350	25,000	....	....
1891–'92	35,287	24,737	4,456	6,094

From this table it will be seen that the United States imported, respectively, 26, 62, and 70 per cent of the total production.

The closely estimated crop of the current year for the State of Pernambuco is from 164,000 to 185,000 tons; for Maceio, 45,000 tons; for Natal, 9,000 tons. In regard to Ceara, the entire product will be for home consumption.

Thus, judging the future by the past, the product of sugar from this State and adjoining consular districts will be about 225,000 tons.

I have received the following statement from Mr. R. H. Conolly, senior partner of the firm of Messrs. R. H. Conolly & Co., one of the most reliable merchants in this place, and from whom I have on several occasions received valuable information:

> The planting for the crop of 1893–'94 is the largest on record, and if the seasons are only regular the crop is expected to be from 220,000 to 250,000 tons in the State of Pernambuco.

There has been competition among purchasers of the products of this State.

Recently a combination was made for the benefit of the body politic in the nature of a "trust;" hence there is only about one buyer in the United

States for the sugar products of this country at the present time, when heretofore there were several. I only hope, as every good citizen does, that the object of this amalgamated interest is for the benefit of the consumer.

EDWIN STEVENS,
Consul.

UNITED STATES CONSULATE,
Pernambuco, September 20, 1892.

INDUSTRIAL CONDITIONS IN ENGLAND AND WALES.

REPORT BY CONSUL HOWARD, OF CARDIFF.

The industrial outlook in this consular district is not encouraging. The business depression which began over a year ago has continued not only without an interruption, but with increasing severity. This remark applies not to any particular class of business, but to all classes; not to any particular industry, but to all industries. I can not better describe the situation than by quoting from the address of Sir Albert Rollit, M. P., president of the Associated Chambers of Commerce of the United Kingdom, at the annual meeting of the association recently held at Newport, in this consular district, who said, as reported by the South Wales Daily News:

> In the district in which they were assembled there were object lessons for them in their mines, furnaces, and docks; their staple trades in coal, iron, shipping, and shipbuilding made Newport and its neighborhood one of the trade pulses of the country. Their chamber, he understood, was well organized and active in commerce and conciliation; and they furnished the visitors not only with an excellent program, but with many resources for recreation. They would not, like Plato, have to banquet only upon their thoughts. In the performance of their duty his predecessors had generally been able to congratulate them upon the state and prospects of trade, and to fortify their opinions by statistics showing its greatness and prosperity. The absolute magnitude of our commerce and our shipping needed no statistical reënforcement, but, compared with that of some competing nations, the figures would not be so satisfactory, unless in stimulating our people to renewed thought and action to the retention of both prosperity and predominance. The late Lord Derby's prophesy of 1836—"the Continent will not always permit England to be the workshop of the world"—had come true; now they were all proud to be nations of shopkeepers, and commerce had become the standard of national greatness. They were engaged on all sides in industrial rivalry, if not in industrial warfare; and the business interests of the country demanded not only the sedulous care of merchants and tradesmen, but also the active and constant aid of statesmen and diplomats. In the present state of business it was difficult, if not impossible, to find much which was satisfactory or even cheering. The prosperity of the past had given way to a wave of wide and deep depression. In the commercial, as well as in the physical, world they met with more or less periodic alternations, and for some time past the commercial world had been, and seemingly still was, on the downward grade. The coal, iron, and steel trades, which affected most other branches of industry, were dull; the textile districts were harassed by tariffs and perplexed by economic, monetary, and labor problems. Sheffield and other centers complained of the annihilation of whole branches of business by the first of those causes; the building trade was chiefly occupied in public or semipublic works; while shipbuilding was little more than a remembrance, and shipping was suffering, not only from

commercial causes, but from an epidemic which in 1892 left to such a progressive port as Hamburg, as to many other places, the lesson which Hull learned in 1849, that it was not only right in itself, but true ecomony, to make proper provision for the public health. Moreover, the occurrence of the general election is stated from many quarters to have been very destructive to trade, and, as a business man, he strongly shared the feeling that all elections should be held on one and the same day. The official returns confirmed the local business reports and indicated but slight signs or likelihood of improvement. They showed that the volume of our trade had been diminishing, and that, though the imports during the year had been increased by £3,500,000 as against the corresponding eight months of 1891, this had been caused by the great accession of food stuffs and the comparatively slight increase of manufactured goods; while our exports were marked by a decrease of £15,250,000, or over 9 per cent. Other figures led to the same conclusion, and the returns of trades unions showed that the percentage of unemployed had been gradually rising, and since August of last year had increased from 3.28 per cent to 5.02 per cent. Indeed, in most branches of the iron-founding and engineering trades labor prospects for the latter end of the year were not encouraging.

Wherever this depression may have commenced or whatever may have been its cause, whether in its nature general or particular, the interdependence of one business upon another, the manifold and intricate relationship between one industry and another has had the effect of demoralizing the whole. For example, the depression in the tin-plate industry affects the steel and iron works, the depression in the steel works affects the coal miners, depression in coal in turn affects the shipping, and dullness in shipping affects the general trader, until the whole industrial population is thrown into disorder and discouragement; and, while each of these industries is worthy of special mention in this connection, I will first speak of agriculture, which, after all, as well in England as in the United States, is the foundation of all industrial life and enterprise.

AGRICULTURE.

Of all the industrial classes in Great Britain the tenant farmer is most worthy of consideration and sympathy. With a dogged pertinacity he has struggled year after year against insufferable land laws and mediæval legislation, against a villainous climate at home and resistless competition from abroad, in a vain and hopeless effort to pay his rent, support his family, and preserve the traditions of an honorable yeomanry. And every season has found him poorer and the outlook more hopeless. To-day the farmers are organizing themselves, issuing manifestoes, and demanding legislation in their interest. To the grain-raiser's demand for a trifling duty on wheat the answer is made that the corn laws were abolished fifty years ago and that question settled forever. To the farmer, however, to whom the problems of agriculture and political economy are ever present and never solved, but in whose solution are better times and greater comforts, the answer is anything but satisfactory. It is beginning to dawn upon him that since the days of Cobden the agricultural condition of Great Britain has entirely changed. Then his competitors were at his doors, laboring under conditions similar to his own; to-day his wheat meets in his own markets the wheat of India and Dakota, his fat steer finds a rival in the plain-fed beast of Colorado and Texas, his mutton is bargained against the products of New Zealand, and his fruit is cheapened in his own village by the pears of California and the apples of Vermont. The political economy, argues the farmer, that shudders at a tax on wheat raises millions of pounds of revenue on tea, and the English farmer begins to inquire how it would increase the cost of living or enhance the cost of the British breakfast table to take off the duty on tea, which everybody consumes, the poor quite as much as the rich, and put the same on wheat. This, of course, is rank heresy, almost treason; but the fact that the English farmers, as well as a good many other people, are thinking it and sometimes asking it marks a new era in the economic thought of this generation.

With all these difficulties besetting the farmer of Great Britain he would long ago have gone to the wall had it not been for the cheapness of his labor; this has been his sole salvation. Incredible as it may seem to American farmers who are paying from $18 to $25 per month, with board, to a common farm hand, the agricultural laborer in England is paid on an average about $12 per month, out of which he boards himself, shelters and feeds his family, and provides them with the alleged comforts of life. This rate of wages has saved the farmer from bankruptcy hitherto and made it possible for him to till the soil and pay the rent; but it has at the same time driven, and is driving, the agricultural labor to city and town, where it swells the constantly increasing current of common labor to a disastrous flood. The result is inevitable. The English farm-worker sees, in these days of easy communication, when rustic labor sometimes ventures from the safe tranquillity of green lanes and quiet fields to dare the bustle of factory towns and the din of city streets, other men who work for shorter hours amid the so-called attractions of urban life receiving twice his pay, and forthwith he leaves his discontent, his quiet country home, and becomes an added atom upon the great stream of city life. It is an unfortunate thing for country and for people, but the land laws and the difficulties of agriculture are chiefly responsible for this condition. It might naturally be supposed that this cheapness of farm labor, which still exists, would have been taken full advantage of by the English farmer; singularly enough, however, such is not the case.

However provident he may be in other things, the English farmer is a hopeless spendthrift in labor, which is really his sole advantage. Last spring, in seed time, I saw two men with five horses working a common seed drill, such as in the United States would have been managed with one man and two horses. Two men plowing—one to manage the team and one to manage the plow—is not an unusual sight. A man, a horse, and a cart form the common trio in this country in farming operations. This present harvest I traveled through the heart of England, and in a day's journey saw only three harvesting machines working in the fields, but saw hundreds of men reaping the grain with sickles, followed by women who bound the sheaves. Conservative English laborers still cling to the reaping hook of a thousand years ago, and the transition grain cradle of our fathers has apparently made little impression upon them. Much of the hay is mown with scythes and raked by hand, and practically all of it is stacked in the fields or yards.

The English fields are, as a rule, cleanly and beautifully tilled, but with an excess of labor that the farmer can ill afford; the same work would be accomplished by the American farmer with half the labor, and sufficiently well. Another point, and one counting largely in net results, is the smallness of the English field, necessitating much loss of time in cultivation. In this connection I may observe, what has been often noted by others, that the farm tools and implements here are much heavier and more cumbersome than those in the United States. As bearing upon the cost of farm machinery affecting the profits in this country, I made careful inquiry last summer of many dealers in agricultural implements and found that an English mowing machine costs the farmer from $85 to $90 and horse rakes from $35 to $40, with a discount of only 10 per cent for cash, and other farm machinery in proportion.

We have an idea in the United States that English farms are all well tilled, that English cattle and sheep are always fat, and that all the agriculture of this country is after the model of farmers' institutes and agricultural colleges; but the fact is that there is a great deal of slovenly farming in England, and that scrawny cattle and foot-rot sheep are not unknown in the British isles.

This is my view of some phases of English agriculture as I have observed it from the highway and in the fields. The present season was favorable to grain-growing, but the hay harvest was almost a failure, and the rainy weather in August and September caused much of the wheat to grow in the shock, and has added another to the long list of disappointing harvests for the English farmer; and so he comes to the winter of his discontent.

TIN-PLATE INDUSTRY.

For many years South Wales had a world-wide monopoly of the manufacture of tin plates. From San Francisco to St. Petersburg she was without a rival. This of itself in any business would naturally so stimulate production that prosperity would very likely be followed by collapse. Added to this natural monopoly, the abnormal prices secured in anticipation of the passage of the McKinley bill still further so stimulated the industry that the capacity for production entirely passed the necessities of ordinary business. For months previous to the day when the tin-plate clause of the new tariff was to take effect the whole capacity of the tin-plate works in this country was tested to its utmost in filling the orders of manufacturers of tin-plate goods and speculators in both countries. The work was carried on night and day, and large sums of money were undoubtedly made by the manufacturers and good wages were earned by the men. The very momentum of mechanical force and commercial activity carried the output beyond this date and kept the production up and the men employed for several months, until large quantities of tin plate stored in warehouses and the falling off in orders finally compelled the masters to curtail their production and in many cases to close their works altogether. Factory after factory shut its doors, until to-day probably more than sixty tin-plate works are idle.

On the 1st of September the following works were known to be closed, and since that time some others have been added to the list:

Name of works.	Mills.	Name of works.	Mills.
Hendy	4	Old Lodge	6
Garmant	3	Midland	3
Penclaudd	4	Llangennlch	6
Gwendraeth	10	Spitty	4
Landore	8	Burry (half time)	6

On the 24th of September the tin-plate works at Blaina were closed, and at a meeting of the men held that evening the general secretary of the tin-plate workers' union said that between 3,000 and 4,000 men in the district were idle. This condition has brought the men to a serious discussion of the question of making some material concession to the masters in the matter of wages or in the curtailment of production. The following scale of wages for list sizes was adopted in 1874 and has not been materially changed since:

Description.	Wages.
Rolling	3*s*. 3*d*. per dozen.
Doubling	2*s*. 9*d*.
Furnacing	2*s*. 7*d*.
Shearing	1*s*. 1*d*.
Annealing	12*s*. to 14*s*. per 100, according to class.
Black pickling	5*s*. to 6*s*. 6*d*., or by day agreement.
White pickling	5*s*. 6*d*. per 100, or by day agreement.
Tinning	3*d*. per box.
Washing	3*d*. per box.
Greasing	1*d*. per box.
Sorting	6*s*. 3*d*. per day, 3 sets.

The leading spirits among the workmen, however, oppose any concessions at present that shall have the effect of permanently reducing wages. It is inevitable, however, that some concession must ultimately be made or the state of trade materially changed, for I am informed upon good authority that at present prices manufacturers are turning out plate at a loss of 3*d*. per box. As to prices, I quote the following from the published trade reports of September 26:

> *Liverpool, Saturday.*—This has been another week of disappointment both in the volume of business transacted and the figures obtained. An unprecedented sale as regards price is reported of a fairly good line of C 14 by 20 full weight Bessemer cokes at 11*s*. 6*d*. free on board in Wales. It would appear from this that the recent action of the workmen in deciding to coöperate with masters in an attempt to cheapen production is already having effect. Orders from Canada, San Francisco, and Russia are few and far between, and American business has consisted chiefly of light Bessemer squares and odd-sized cokes and a few fairly good

grade ternes, the latter realizing 11*s.* 1½*d.* for C 14 by 20, and 22*s.* 3*d.* for C 28 by 20, £108, free on board in Wales.

The following table, showing the exports of tin plate from South Wales during the month of August, 1892, is taken from the report of the board of trade:

Destination.	Quantity.	Value.
	Tons.	
Russia	1,977	£24,484
Germany	193	2,687
Holland	428	6,276
France	468	6,807
United States	24,211	314,888
Australasia	609	8,120
British North America	531	8,471
Other countries	3,873	53,374
Total	32,290	425,107

The corresponding figures for the month of August, 1891, were 14,574 tons, valued at £213,572; August, 1890, 35,593 tons, valued at £562,423.

For the eight months of the present year up to the 31st of August the total exports of tin plates and sheets were as follows:

Destination.	Quantity.	Value.
	Tons.	
Russia	17,794	£249,068
Germany	2,464	34,098
Holland	2,736	40,632
France	6,388	91,872
United States	191,992	2,570,062
Australasia	5,462	78,374
British North America	8,939	136,065
Other countries	34,472	466,823
Total	270,247	3,666,994

In 1891 the amount exported for the corresponding period to all countries was 337,859 tons, valued at £5,584,407; in 1890 the amount was 272,261 tons, valued at £4,140,269.

Some encouragement is given to the tin-plate workers from the fact that the total exports of tin plates for the eight months ended September 1 was only 2,000 tons less than for the corresponding period of 1890. But I am inclined to the opinion that a large part of the exports for the last eight months was not the natural product of that period, but was a part of the surplus produced by the momentum of manufacture to which I have already referred and to fill long-standing orders; in fact, I saw an invoice yesterday of a large amount of tin plate the order for which was given last April.

IRON AND STEEL INDUSTRY.

The depression in the tin-plate business has naturally affected the iron and steel industry, but the latter business has its own difficulties to contend with independently of any other. The condition of the industry may be gathered from the number of strikes and lockouts that have occurred therein; and, what is more significant, as bearing upon the question of the relative profits to the American and British manufacturer, is the rate of wages paid to the workmen in this country. For some weeks a strike has been in progress at Ebbw Vale and Blaenavon, in this consular district. Skilled workmen receive there 17*s.* 6*d.* per week. The locomotive men in the Ebbw Vale works receive and demand as follows per day:

Workmen.	Present rate.		Rates demanded.	
	s.	*d.*	*s.*	*d.*
7-ton crane drivers	3	4	4	6
5-ton crane drivers	3	0	4	6
6-wheel drivers	3	5	5	6
Firemen	2	10	4	6
Latchmen	2	10	4	0
4-wheel drivers	3	2	5	0
Firemen	2	9	4	6
Latchmen	2	9	4	0

As yet there has been no settlement of the dispute.

SHIPPING.

The depression in the coal trade, as well as in all other classes of business, has produced great demoralization in the shipping trade, and more vessels are laid up at the port of Cardiff, including the docks at Penarth and Barry, and at Newport than before for many years. The port rate for seamen's wages is as follows:

	£	*s.*
Sailing ships:		
India and Mediterranean	3	5
Baltic and America	3	10
Steamers:		
Baltic and westward—		
Sailors	4	5
Firemen	4	10
Mediterranean—		
Sailors	4	5
Firemen	4	10

This rate of wages is about 10*s.* all round less than a year ago.

As bearing upon the question of whether international commerce is altogether a matter of barter, the fact that 206 vessels cleared from this port alone for foreign parts in ballast during the year 1891 is not without significance.

BUILDING TRADES.

Since the 1st of May the carpenters and masons engaged in the building trades in this town have been out on strike. There are several matters in dispute between the masters and the men, but the question of wages is whether the men shall continue to receive 8½*d.* per hour as formerly or 9*d.* an hour, their present demand. At this time the prospect of a settlement seems as far off as when the strike began.

WALTER E. HOWARD,
Consul.

UNITED STATES CONSULATE,
Cardiff, September 30, 1892.

THE CAMPHOR TRADE OF FORMOSA.

REPORT BY MINISTER DENBY, OF PEKING.

The report of the customs commissioner at Tamsui (Mr. F. Hirth) for the year 1891 contains the statement of some interesting facts relating to the camphor trade in the island of Formosa.

There were exported from Formosa to Hongkong last year 16,353 piculs of camphor (a picul is 133⅓ pounds avoirdupois), of which the value was 253,575 haikwan taels (the haikwan tael is worth $1.20 in American gold). The total export was 16,760.96 piculs, valued at 259,871 haikwan taels. This is a large increase over former years. The product in 1890 was 100,833 piculs.

Unfortunately, one of the causes of this great production is the destruction of the camphor trees by the persons engaged in the trade. They are said to hew down the trees remorselessly. This extraordinary increase in the production of camphor is also alleged to be greatly due to the extensive use of the article in the manufacture of smokeless powder. Less expensive ingredients of this new invention have, it is said, been now discovered, but camphor is evidently still used in its manufacture.

The commissioner informs us that in 1890 a foreign monopolist contracted to pay $30 per picul, and out of this sum $18 were set aside in lieu of a tax, leaving $12 as the net price finally reaching the producer. At the beginning of 1891 this monopoly was abandoned. In order to protect this industry against the attacks of the aborigines, the provincial government has to keep a garrison and to defray expenses which, it is maintained, are incurred chiefly for the benefit of the camphor trade. A garrison tax, or *fang fei*, formerly covered by the monopoly price, has, since the last Chinese New Year (February 9, 1891), been levied in the shape of an excise payable on a license issued to each camphor still. These licenses are paid monthly and amount to 80 cents per still, which sum is to be reduced to 30 cents—in the shape of a bonus to the licenseholder—when the price at Hongkong falls below $25 per picul. The garrison tax is equivalent to about $9 per picul.

Under the new regulations the purchasers of camphor are not allowed to approach the stills for fear of injury from the savages; but four markets have been selected, viz, in Taipei, Tokoham and Sakko-k'eng, and in Chung-lu, or middle district, Chipchipkoi and Tohchay, whither all produce is to be taken for sale. The provincial government holds that the camphor forests, having been reclaimed by warfare from the savages and brought under cultivation at Government expense, are the property of the Crown. The Government might utilize these forests under its own administration. If it does not choose to do so, Chinese settlers must abide by the regulations made by the Government.

The foreign ministers heretofore fought the establishment of a camphor monopoly in Formosa, but the system of licenses now existing has not been attacked.

Reduction in taxation under the new system and increased demand stimulated production and enabled the producer to earn $15 per picul. The commissioner estimates the yearly output at 20,000 piculs. Outbreaks of the savages may reduce this amount. They have already partially destroyed the stills near Sakko-k'eng and Tokoham, the former of which have temporarily stopped work altogether, and the produce of the latter has been curtailed from 1,500 piculs to 500 piculs a month.

The commissioner states that as long as Japan camphor is high Formosa can compete, but if the former is reduced in price the Formosa trade would cease, unless the tax were reduced. Formosa camphor can not be refined to the proper hardness without adding Japan camphor. The cause of this peculiarity has not been discovered.

The great quantity of oil and moisture contained in the Formosa camphor keeps the prices 5 per cent lower than those of the Japan gum.

Camphor is the chief ingredient of celluloid. As is well known, also, it is extensively used in the materia medica of Europe and America. It is to be hoped that the new regulations above mentioned will have a beneficent effect on the production of this important article.

CHARLES DENBY,
Minister.

UNITED STATES LEGATION,
Peking, July 2, 1892.

CANADIAN CANALS.

REPORT BY CONSUL PACE, OF PORT SARNIA.

The Canadian canal system comprises various short cuts or canals extending from Montreal, on the east, to Prescott, near Lake Ontario, and the Welland Canal, uniting lakes Ontario and Erie. By the aid of these artificial water ways vessels of moderate size and light draft may be transferred from the Straits of Belle Isle to Port Arthur, Fort William, or Duluth, a distance considerably exceeding 2,000 miles. Of this distance 71 miles is by artificial water ways; the balance is by lakes, straits, and rivers.

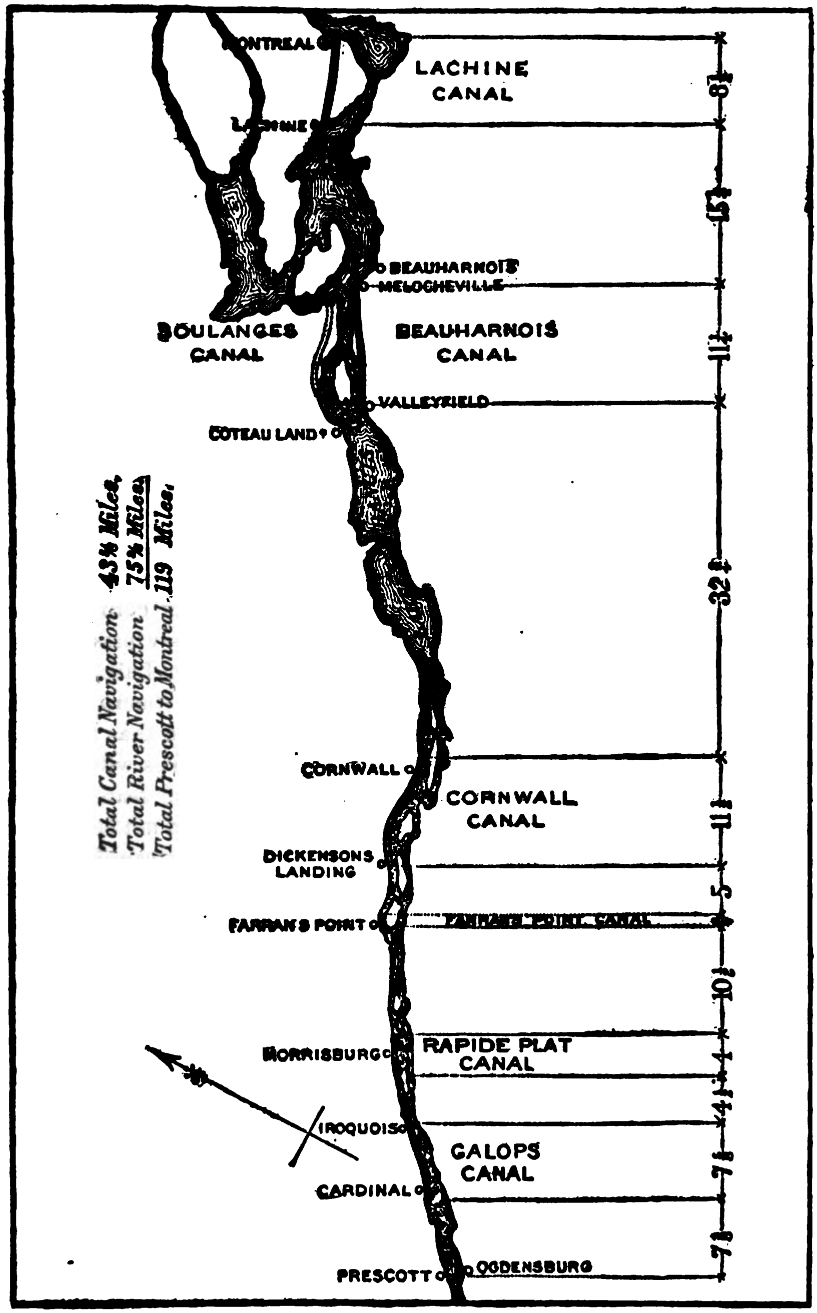
The following table, which I take from the Canadian report of canals for 1891, gives details as to distances and names of lakes, rivers, and artificial channels to be met on the voyage from the Atlantic Ocean to Port Arthur, on Lake Superior:

Table showing distances of St. Lawrence navigation.

From—	To—	Sections of navigation.	Statute miles.	
			Intermediate.	Total to Straits of Belle Isle.
Straits of Belle Isle	Cape Whittle	Gulf of St. Lawrence	240	240
Cape Whittle	West Point, Anticosti	do	201	441
West Point, Anticosti	Father Point	River St. Lawrence	202	643
Father Point	Rimouski	do	6	649
Rimouski	Bic	do	12	661
Bic	Isle Verte	do	39	700
Isle Verte (opposite Saguenay).	Quebec	do	126	826
Quebec	Three Rivers	River St. Lawrence to tide water.	74	900
Three Rivers	Montreal	River St. Lawrence	86	986
Montreal	Lachine	Lachine Canal	8¼	994¼
Lachine	Beauharnois	Lake St. Louis	15½	1,009¾
Beauharnois	Ste. Cécile	Beauharnois Canal	11¼	1,021
Ste. Cécile	Cornwall	Lake St. Louis	32¾	1,053¾
Cornwall	Dickenson's Landing	Cornwall Canal	11½	1,065¼
Dickenson's Landing	Farran's Point	River St. Lawrence	5	1,070¼
Farran's Point	Upper end Croyle's Island	Farran's Point	¾	1,071
Upper end Croyle's Island	Williamsburg or Morrisburg.	River St. Lawrence	10¼	1,081¼
Williamsburg	Rapide Plat	Rapide Plat Canal	4	1,085¼
Rapide Plat	Point Iroquois Village	River St. Lawrence	4¾	1,090
Point Iroquois Village	Upper end Presque Isle	Point Iroquois Canal	3	1,093
Presque Isle	Point Cardinal, Edwardsburg.	Junction Canal	2¾	1,095¾
Point Cardinal	Head of Galops Rapids	Galops Canal	2	1,097¾
Galops Rapids	Prescott	River St. Lawrence	7¼	1,105
Prescott	Kingston	do	59	1,164
Kingston	Port Dalhousie	Lake Ontario	170	1,334
Port Dalhousie	Port Colborne	Welland Canal	26¾	1,360¾
Port Colborne	Amherstburg	Lake Erie	232	1,592¾
Amherstburg	Windsor	Detroit River	18	1,610¾
Windsor	Foot of St. Mary's Island	Lake St Clair	25	1,635¾
Foot of St. Mary's Island	Sarnia	River St. Clair	33	1,668¾
Sarnia	Foot of St. Joseph's Island	Lake Huron	270	1,938¾
Foot of St. Joseph's Island	Foot of Sault Ste. Marie	River St. Mary	47	1,985¾
Sault Ste. Marie	Head of Sault Ste. Marie	Sault Ste. Marie Canal	1	1,986¾
Head of Sault Ste. Marie	Point aux Pins	River St. Mary	7	1,993¾
Point aux Pins	Port Arthur	Lake Superior	266	2,259¾
Port Arthur	Lake Shebandowan		45	
Lake Shebandowan	Northwest Angle		312	
Northwest Angle	Winnipeg		95	
Point aux Pins	Duluth		390	

NOTE.—Of the 2,259¾ miles from the Straits of Belle Isle to the head of Lake Superior, 71 miles are artificial navigation and 2,188¾ open navigation. Straits of Belle Isle to Liverpool, 1,942 geographical, or 2,234 statute, miles. The total fall from Lake Superior to tide water is about 600 feet. The steamboat voyage from Collingwood to Port Arthur is 532 miles.

I also reproduce a diagram showing the location of these various cuts or water ways which have been constructed by the Canadian Government in an effort to render navigable the waters of the St. Lawrence River. These canals have been constructed at great cost, owing to the rock formations


Total Canal Navigation 43¾ Miles.
Total River Navigation 75¼ Miles.
Total Prescott to Montreal 119 Miles.
MONTREAL
LACHINE
LACHINE CANAL
BEAUHARNOIS
MELOCHEVILLE
SOULANGES CANAL
BEAUHARNOIS CANAL
VALLEYFIELD
COTEAU LANDING
CORNWALL
CORNWALL CANAL
DICKENSONS LANDING
FARRANS POINT
FARRANS POINT CANAL
MORRISBURG
RAPIDE PLAT CANAL
IROQUOIS
GALOPS CANAL
CARDINAL
PRESCOTT
OGDENSBURG
8½
15½
11¼
32½
11½
5
¾
10½
4
4½
7½
7½

through which the excavations were necessarily made. The depth of water usually maintained in the St. Lawrence group of canals does not exceed 8 feet 6 inches in some of the locks, which is not sufficient to float a deep-draft vessel even without cargo. Only two weeks ago the Wheeler Shipbuilding Company, of Bay City, Mich., had occasion to deliver a Government lighthouse tender, which they had built under contract with the United States Government, to a port on the seacoast. This vessel was of moderate size, but it became necessary to place under this ship canvas air bags in order to float her through the St. Lawrence canals without cargo.

The depth of water in the Welland Canal is reported to be 14 feet, while the locks do not exceed 270 feet in length, so that only second-class American ships can be navigated through this canal. While this water way is sufficiently deep and the locks are sufficient in length to accommodate any ship of Canadian register designed for lake navigation, it falls far short in depth and length of lock of being a channel through which our first-class ships can pass from the lakes to the sea. The tendency of the lake shipowners is to build larger vessels for the growing lake trade. Thirty years ago a schooner having capacity for 20,000 bushels of grain was considered a large vessel; to-day such a vessel is too small for the grain trade. Then vessels would carry their cargoes on a 10-foot draft of water; now many of our steamers have a capacity for 100,000 bushels of corn or 3,000 tons of ore. At present a few of our second-class vessels may pass through the Welland Canal, and thus reach the port of Oswego, on Lake Ontario. For this privilege, available to a part of our shipping, the American vessel owner is assessed 20 cents per ton. On the other hand, Canadian fleets may pass through the St. Clair Flats and Sault Ste. Marie canals without hindrance, without money, and without price. To reach the seaboard from Lake Ontario our ships encounter natural barriers, which can not be removed by parliamentary enactments. To send our large lake steamships with cargoes from Chicago or Duluth to Montreal would require a reconstruction of the whole Canadian canal system. The locks of the Welland Canal would require to be 50 feet longer and the channel itself 3 feet deeper, while the St. Lawrence canals would require to be dredged to fully twice their present depth. Even then our vessels would be in constant danger of wreck, owing to the huge bowlders and swift currents of the river which form the greater part of this treacherous winding channel to the sea. To make the St. Lawrence canals free to our shipping is of no practical advantage to us from a commercial point of view, for through this channel even our third-class ships laden with cargo can not pass without lighterage, and this process every shipowner knows would entirely wipe out the profits on freight. The cities of Chicago, Milwaukee, and other great commercial centers situated on Lake Michigan are open to the fleets of Canada, notwithstanding these ports are located wholly within the limits of the United States, while the only canal in British North America of any real value to us (the Welland) is practically closed to our shipping by the imposition of burdensome tolls.

By reference to the Canadian press I learn that the Government of Canada desires to postpone a settlement of this question of canal tolls until next year, owing to the fact that certain Canadian transportation companies would suffer a loss by any change in the matter of rebates. It is also stated that the Canadian authorities ask for more time to consider the matter. Of course, this information is not official, but the fact that our vessels are still taxed in the Welland canal is proof to our shipowners that Canada still adheres to the system adopted by the Canadian cabinet in April last, which was to impose a tax of 20 cents per ton on vessels transporting cargoes from Chicago or other upper-lake American ports to American ports on Lake Ontario. That Canada still accepts the free use of our water ways can be demonstrated any day during the season of lake navigation. The Canadian ship passes through the St. Clair Flats and Sault Ste. Marie canals as freely as do our own ships.

It is stated on good authority that the Canadian Sault Ste. Marie Canal will be open to navigation some time next year. By the expiration of 1893 it is probable that the Canadian channel at the foot of Lake Superior, which, when finished, will run parallel with our own Sault Ste. Marie Canal, will be finished and opened up to Canadian commerce. When this is accomplished there would no longer exist any necessity on the part of Canada to seek channels through American territory to the Canadian ports of Lake Superior. I know that extraordinary efforts are being made to hasten the completion of the Canadian Sault Ste. Marie Canal at the foot of Lake Superior, and I also know that with the completion of that canal the necessity on the part of Canada to establish reciprocal canal regulations with us would cease. The navigation of the St. Clair Flats Canal, while of great convenience to Canada, is really not a necessity. Canadian shipping is of light tonnage and light draft as compared to ours. Being smaller and drawing less water, the Canadian vessel could pass around the St. Clair Flats Canal by the old channel, the route taken by our shipping before the war, before our vessels had increased in size sufficient to require a new water way or deeper channel. By the old route the flat-bottomed, perpendicular-sided Canadian canal boat could without much difficulty find a passageway to Lake Huron and thence to Canadian ports on Lake Superior.

Owing to the natural obstacles to navigation which must ever exist in the River St. Lawrence, occasioned by swift currents and massive rocks, it is not at all probable that this thoroughfare will ever be considered a safe and popular route to the seaboard.

SAM'L D. PACE,
Consul.

UNITED STATES CONSULATE,
Port Sarnia, August 19, 1892.

IRRIGATION IN SPAIN.

REPORT BY CONSUL NEWSON, OF MALAGA.

Irrigating canals are constructed by the State. The tolls on water are collected as a revenue, and, as these enterprises are generally undertaken for the common good of a community, they must of necessity be done by the State or under State authority by associated capital and labor in the form of corporations.

In cities, villages, or communities where irrigating canals exist a judge of the water (*alcalde de aguas*), together with one or more suitable persons, is elected by the community. The judge of the water has jurisdiction in all disputes relating to the gathering and distribution of the water through irrigating canals.

Each proprietor is alloted a supply of water proportioned to the labor and capital contributed to its introduction or the amount of land he has in cultivation. He must punctually take his turn when it comes, whether it be in the day or the night, as the water is flowing all the time and can not be allowed to run to waste.

In other provinces, as well as in this, where no proper canal exists, but only irrigating channels (*acequias*), these are subject to the same rules and regulations as above described, with the exception that the water allotted is counted by hours. Ancient water courses have become private property under State revenue. Spain at this day employs irrigation to so great an extent that few crops are raised without it.

In the time of the Conquest the Spaniards, to their astonishment, found aqueducts and irrigating canals brought to great perfection by the Moors, and which still exist. They crossed the lowlands in every direction, distributing themselves in minor streams; supplying gardens, fountains, and mansions; filling the marble baths and watering rich fruits and flowers, while the very sides of the adjacent rivers were terraced with trenches for catching water and conducting it in some instances many miles to a lower temperature and more fertile soil.

One of the greatest specimens of hydraulic architecture is the dam and canal made by the Moors for leading the waters of the River Guadalquivir into the city of Granada. The dam was constructed between two steep mountains for the purpose of gathering a reservoir of water. It is 156 feet high, 70 feet thick, and 273 feet long. The waters, after irrigating many miles, were conducted through the streets of Granada and contributed to the wealth, beauty, and luxury of that gorgeous capital in the shape of fountains, baths, fruits, and flowers. The constructions form some of the greatest monuments which the Moors have left as an heritage to Spain.

There are in the province of Malaga only four dams or reservoirs for the preservation of fluvial and hyemal waters, to be used in summer for the benefit of the productions of the soil.

There is an aqueduct (spring) in the village of Torre-Molinos (Tower Mills), say 4 or 5 miles from this city, from which a conduit passes through some parts of the country and dwellings of the city, which may safely be relied upon to keep up the required supply of water from the spring beyond, so there is no fear from a drought. A yearly tax on the tenants is imposed, either by the authorized corporation or the common council. Water for irrigating purposes is also drawn from the beds of the adjacent rivers by the aid of hydraulics, many of them being the American systems, which are also used in gardens and mansions.

Among the improvements in this city which the Government has of late been contemplating is the formation of two basins and a cross dam of some miles in length for high water and the other for low water, and it was supposed a very valuable water power could thus be established. All means, however, to effect this result have failed, owing to the serious losses to which farmers have been subjected by reason of the grape disease, which prevented them from investing in the enterprise.

About the year 1867 the following announcement appeared in one of the Italian papers published in Genoa, of which this is a correct translation:

> One of the largest enterprises for opening and irrigating canals in Spain has recently been undertaken by a Mr. Eldredge, an American. It is a concession from the Spanish Government and embraces the right to purchase at a nominal cost the body of land which the canal is intended to reclaim from sterility. The location of this enterprise is about 60 miles south of Madrid, and will involve an outlay of about $5,000,000.
>
> Success to the American irrigation in Spain.

We do not learn, however, what became of Mr. Eldredge and his irrigating plan, but probably, annoyed by lawsuits, he lost his money and abandoned the enterprise, as many other English and American capitalists have done since.

The disposition of the 1,816,631 acres in the province of Malaga is as follows:

	Acres.
Cereals on unirrigated land	653,818
Vine culture	278,793
Olive trees	102,759
Different branches, irrigated	781,261
Total	1,816,631

The crops which thrive requiring irrigation are lemons, oranges, hemp, flax, sugar cane, onions, sweet potatoes, garlic, and vegetables generally.

The principal crops which require no irrigation are wheat, barley, vine culture, almonds, figs, trees, acorns, maize (either with or without irrigation), olive trees, bird seed, aniseed, chick-peas, beans, peas, esparto grass, etc. These crops do better with irrigation.

My experience and observation here demonstrate to me that all crops do better with irrigation than without, and without water Spain could not exist for five days. The Moors, who ruled the southern part of the country for nearly eight hundred years, understood this perfectly well, so their water supply was of paramount importance to the existence of the nation. A good spring of water was a gold mine to them, for it was something all the people must have, and only he who has traveled hundreds of miles over a dusty road with no water can appreciate this God-given luxury. The vegetable kingdom suffers as much from thirst as the animal kingdom, and hence water is one of the greatest elements to man's comfort and to nature's invigoration. If good irrigating water systems could be established in the Dakotas and in other portions of our Western States, land now useless could be made to blossom and bear abundant results. In large orchards of oranges, lemons, and fig trees, where irrigation is abundant, the trees are green and vigorous and bear well, while where no irrigation is applied the trees are stunted, sickly, and the fruit inferior. So, too, of vegetables. Hence my conclusion, that in the cultivation of the soil irrigation is essential in a country where there are but few rainfalls or where the soil is parched by the heat of the sun.

T. M. NEWSON,
Consul.

UNITED STATES CONSULATE,
Malaga, September 8, 1892.

WAGES AND COST OF LIVING IN GERMANY.

REPORT BY COMMERCIAL AGENT WASHBURN, OF MAGDEBURG.

Labor movements have long since ceased to be confined to any people or any land. Their evolution is one of the phenomena of the present epoch. Trades unions have become well-nigh universal, and the demand for industrial reform is just as sharply defined in monarchical Germany as in democratic United States or Australia. The tide of discontent and the attendant agitation seems to be constantly rising. Opinions will differ as to the reasons for this. There is little doubt that the condition of the workingman has been substantially ameliorated of late years, though this is emphatically denied by the majority of the socialist leaders. This does not alter the fact, however, that in many European industrial centers the condition of the wage-earning class is most deplorable. The earnings of the average wage worker are pitiably small. It is certain that they do not allow him any luxuries; it may well be doubted whether, in many cases, they are sufficient for the barest necessaries. It is to be regretted that there is no organized official bureau for the collection of wage statistics in Germany. In its absence the investigator is obliged to turn to publications more or less responsible. In most cases, however, the figures given represent careful research and may be accepted as approximately accurate.

In Prussia from 1876 to 1888 the average income of 94.4 per cent of those paying an income tax was not over 914 marks ($217.53); 41.36 per cent received only 420 marks ($99.96). Reckoning three persons to be supported by the latter sum, this means 140 marks each annually for 12,000,000 souls—about 7 cents a day—with which to supply all the wants of body and mind. Nor are the statistics for Saxony much more favorable. There 42 per cent receive 500 marks ($119), or less, while 78.08 per cent have incomes ranging up to 950 marks ($226.10).

To present a fuller bill of particulars, the following table shows the average annual wages paid in the various industries during 1889:

Table showing the annual wages paid in the various industries during 1889.

Industry.	Wages.	Industry.	Wages.
	Marks.		*Marks.*
Rhine-Westphalian rolling mills	1,002	Southwest building associations	643
Brewing and malt companies	973	Livery stables	642
Gas and water works	952	Saxon joining companies	629
Forwarding and storing agencies	897	Saxon building associations	627
Publishing companies	896	Rhine-Westphalian building associations	614
Rhine-Westphalian machine shops	894	Silk mills	613
Northwest iron and steel companies	894	Milling companies	608
Northeast iron and steel companies	884	Silesian iron and steel companies	606
Southwest iron companies	843	Rhine-Westphalian textile factories	603
South German iron and steel companies	837	Southwest joining companies	586
Skilled mechanics	837	Distilleries	579
Saxon-Thuringen iron and steel companies	828	Wood-pulp mills	572
Mining companies	827	Würtemburg building associations	568
Private railways	792	South German textile industries	559
Chemical industries	787	Alsatian textile industries	559
Leather industries	780	North German textile industries	550
West German inland shipping	762	Hesse-Nassau building associations	545
Bavarian wood industries	754	Clothing companies	538
South German precious and base metal companies	753	Linen industries	537
Hamburg building associations	749	Bavarian building associations	527
North German precious and base metal companies	748	East German inland shipping	485
Victualing companies	705	Tobacco companies	457
Musical and instrumental industries	698	Thuringen building associations	455
Paper mills	682	Silesian-Polish building associations	449
North German joining companies	661	Silesian textile industries	422
Elbe shipping companies	659	Tile kilns	405
Pottery works	658	Saxon textile industries	380
Glass works	653	Quarries	314
Northeast building associations	645	Hanover building associations	313
		Magdeburg building associations	263

NOTE.—The mark of 100 pfennigs is equal to 23.8 cents.

It will be seen that the wages paid weavers and those engaged in the textile industries are among the lowest in the scale. The condition of this class is indeed most hopeless. Long hours in ill-ventilated and close quarters and a minimum allowance of the plainest food have so reduced the majority of artisans as to make them physically incapable of outdoor work of any kind. The usual fare for a weaver is a breakfast of thin coffee with dry bread broken into it. Dinner consists of potatoes, potato soup, or meal soup with dry bread. For supper there is either thin coffee with dry bread or soup. Meat is purchased in small quantities on Sundays and holidays by the better paid; for the great mass it is a luxury beyond reach. The character of the food never varies from year to year; winter and summer, it is always the same.

From two-thirds to three-fourths of the incomes of small wage-earners is spent for food—food little in quantity and inferior in quality. In a community of 8,900 factory hands the weekly expenses for food in a family of two (man and wife) were apportioned thus: Bread and meal, 181 pfennigs; potates, 35 pfennigs; vegetables, 13 pfennigs; biscuits, 12 pfennigs; milk, 6 pfennigs; butter, 110 pfennigs; bacon, 6 pfennigs; meat, 30 pfennigs; herrings, 8 pfennigs; salt, etc., 7 pfennigs; sugar, 11 pfennigs; chicory, 5 pfennigs; total, 426 pfennigs, or 60⅞ pfennigs per day. This is cited as a typical case among those whose average income is 400 marks—about 42 per cent of the entire population. In another instance the average yearly income of twenty-four families was 295.37 marks. Reckoning two children and one adult dependent upon this amount, the share falling to each would be 98.46 marks—in other words, a daily allowance of 27¼ pfennigs. Less than 7 cents a day is thus represented to be the limit to be expended by 46 per cent of the weaving population.

But, as abject as is the misery and privation revealed by such figures, the privations imposed upon those working in their own garrets are still greater. These unfortunates are for the most part women and young girls. In Leipsic, according to a recent monograph on social studies, the wages paid for a week's work of from eleven to thirteen hours daily in making paper lanterns is 4.50 to 9 marks; men receive from 10 to 12 marks. Women working for umbrella factories get from 5 to 8 marks weekly. The week's wages of a man and wife working together twenty-four hours daily in the making of felt shoes amounted to 12 marks. Sewing girls working for dressmaking establishments receive from 4 to 8 marks per week. Instances of this sort might be multiplied. In many cases the average annual income is not over 150 marks by reason of the enforced idleness at certain periods. The very lowest weekly sum required to exist is estimated at 6.50 marks. This affords a suggestive commentary.

The margin left after paying for food and dwelling is exceedingly small, and almost vanishes with the very large percentage receiving the lowest wages. Notwithstanding, this margin must pay for clothing and the few amusements that can be afforded. The ratio is estimated as follows:

Income.	Food.	Dwelling.	Remaining.
	Per cent.	*Per cent.*	*Per cent.*
900 marks	71.5	21.6	6.9
1,500 marks	66.8	18.9	14.3
2,250 marks	66.2	19	14.8
3,000 marks	64	17	19
4,500 marks	60.8	14.7	24.5
6,000 marks	58.6	15.5	25.9

In general, the industrial condition of Germany, according to the annual report of the Government factory inspectors, was more unfavorable during 1891 than during the preceding year. This is attributed to four causes, viz, unfavorable tariffs, overproduction, excessive competition, and a want of confidence in credits. In many places the factories were partially closed. The attention of the overpresident of the province of Saxony being attracted to this state of affairs, that official asked for an official report for the city of Magdeburg. The statement rendered includes forty-nine factories, employing 9,130 hands, mostly men. In twenty-one of these factories, giving work to 6,864 persons, 891 hands were dismissed, *i. e.*, 13 per cent of the number employed in the factories concerned and 9.8 per cent of the number employed in the total number of factories reported. In three factories 1,080 hands were put on short time—days of five, six, and seven hours. In most cases those unmarried were discharged.

Tables are here appended showing the wholesale and retail prices of the principal articles of food during 1890. I am indebted to the Statistical Year Book of German Cities (1892) for these figures, collected under official auspices. A table is also included showing the day wages paid by the cities to the employés of the various public works.

Table showing the wholesale prices per 100 kilograms for wheat, rye, and potatoes in 1890.

Cities.	Wheat.			Rye.			Potatoes.		
	Average for year.	Highest.	Lowest.	Average for year.	Highest.	Lowest.	Average for year.	Highest.	Lowest.
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Aix la Chapelle	20.90	23.50	18.50	17.80	19.50	15.50	9.60	12.50	7.00
Altona	19.70	23.20	17.80	17.60	19.20	15.40	6.20	10.00	4.00
Barmen	21.30	23.00	20.00	18.40	20.00	16.00	7.00	9.00	6.00
Berlin	19.10	22.50	17.20	16.90	18.70	14.70	4.60	6.00	4.00
Breslau	18.30	20.40	16.50	16.40	18.90	13.40	4.00	5.30	2.60
Cassel	19.90	23.00	17.50	17.80	19.50	14.50	5.60	8.00	3.80
Cologne	19.00	21.00	17.00	17.00	19.50	14.50	5.90	8.00	3.50
Crefeld	19.40	21.50	17.70	16.20	18.50	13.50	6.30	7.50	5.40
Dantzic	17.70	20.60	15.60	15.70	18.20	12.60	4.50	6.50	2.50
Dortmund	20.30	23.50	18.80	16.70	18.30	13.50	6.20	8.20	5.00
Duisburg	20.90	23.00	18.00	18.20	20.00	15.60	6.60	13.00	5.00
Düsseldorf	20.60	22.00	19.50	16.60	17.50	15.50	7.00	8.00	5.50
Elberfeld	21.30	23.50	19.00	18.80	21.50	16.00	6.10	8.40	4.60
Erfurt	18.60	21.90	17.00	17.90	19.50	15.70	5.60	11.00	3.60
Essen	20.60	23.50	17.80	17.10	19.50	15.00	7.00	8.50	5.00
Frankfort-on-the-Main	21.10	23.50	18.80	17.40	18.50	15.80	4.80	8.00	4.00
Frankfort-on-the-Oder	18.20	19.60	16.30	16.50	18.60	13.00	3.60	7.00	2.00
Görlitz	19.40	21.30	17.30	17.30	19.20	15.50	5.00	10.00	3.60
Halle	18.80	21.60	17.00	17.70	19.00	15.30	5.40	7.00	4.50
Hanover	18.70	21.80	17.00	17.40	18.60	14.80	4.80	6.50	3.60
Kiel	19.90	23.00	17.00	17.30	18.50	15.50	5.70	8.00	4.00
Königsberg	18.40	21.00	15.30	15.20	18.80	12.50	5.30	11.60	2.60
Magdeburg	18.60	21.20	16.60	17.20	18.50	15.40	5.20	7.00	4.50
Posen	18.30	19.90	16.90	16.10	18.30	13.50	3.50	5.50	2.20
Potsdam	19.40	21.00	17.00	16.90	18.80	14.60	4.70	8.60	2.90
Stettin	18.40	20.60	16.00	16.50	18.00	13.60	3.90	5.80	2.50
Wiesbaden	21.30	24.00	20.00	17.40	19.30	15.00	5.20	7.50	3.30

Table showing the retail prices per kilogram of food stuffs in 1890.

Cities.	Beef.			Pork.			Veal.		
	Average for year.	Highest.	Lowest.	Average for year.	Highest.	Lowest	Average for year.	Highest.	Lowest.
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Aix la Chapelle	1.59	1.90	1.20	1.78	1.90	1.60	1.52	1.80	1.20
Altona	1.47	1.70	1.23	1.47	1.60	1.33	1.66	1.90	1.43
Barmen	1.34	1.50	1.20	1.60	1.60	1.50	1.40	1.50	1.30
Berlin	1.26	1.80	.90	1.44	1.80	1.10	1.38	1.80	.90
Breslau	1.29	1.60	1.10	1.47	1.60	1.30	1.28	1.60	1.10
Cassel	1 43	1.70	1.10	1.60	1.60	1.60	1.25	1.50	1.00
Cologne	1.48	1.60	1.20	1.40	1.40	1.40	1.32	1.50	1.20
Crefeld	1.28	1.30	1.20	1.46	1.50	1.40	1.34	1.50	1.30
Dantzic	1.27	1.60	1.10	1.35	1.60	1.20	1.25	1.50	1.00
Dortmund	1.30	1.40	1.20	1.49	1.60	1.30	1.33	1.50	1.20
Duisburg	1.35	1.50	1.20	1.58	1.70	1.50	1.31	1.40	1.20
Düsseldorf	1.45	1.60	1.30	1.71	1.76	1.66	1.40	1.50	1.30
Elberfeld	1.18	1.60	.90	1.54	1.70	1.40	1.31	1.60	1.00
Erfurt	1.34	1.40	1.00	1.41	1.50	1.30	1.16	1.24	1.00
Essen	1.42	1.70	1.20	1.66	1.90	1.40	1.31	1.50	1.10
Frankfort-on-the-Main	1.25	1.50	1.00	1.60	1.60	1.60	1.19	1.50	1.00
Frankfort-on-the-Oder	1.20	1.50	1.00	1.32	1.60	1.00	1.20	1.50	1.00
Görlitz	1.19	1.60	.80	1.30	1.50	1.20	1.09	1.40	.80
Halle	1.33	1.80	1.00	1.35	1.70	1.10	1.30	1.70	1.00
Hanover	1.30	1.40	1.20	1.30	1.40	1.20	1.26	1.40	1.10
Kiel	1.40	1.70	1.10	1.36	1.60	1.20	1.50	1.60	1.40
Königsberg	1.36	1.80	.90	1.66	1.80	1.00	1.21	1.60	.80
Magdeburg	1.25	1.50	1.00	1.32	1.50	1.10	1.15	1.40	1.00
Posen	1.25	1.60	1.00	1.39	1.60	1.10	1.25	1.40	1.10
Potsdam	1.30	1.60	1.00	1.48	1.60	1.20	1.28	1.60	1.00
Stettin	1.26	1.50	.90	1.46	1.80	1.10	1.29	1.60	1.00
Wiesbaden	1.36	1.52	1.20	1.45	1.60	1.40	1.38	1.60	1.20

Table showing the retail prices per kilogram of food stuffs in 1890—Continued.

Cities.	Mutton.			Flour.			Rye meal.		
	Average for year.	Highest.	Lowest.	Average for year.	Highest.	Lowest.	Average for year.	Highest.	Lowest.
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Aix la Chapelle	1.70	1.90	1.50	0.36	0.36	0.34	0.32	0.34	0.30
Altona	1.45	1.63	1.23	.32	.32	.32	.26	.27	.26
Barmen	1.42	1.50	1.30	.34	.36	.32	.32	.32	.30
Berlin	1.29	1.80	.90	.35	.36	.34	.33	.34	.30
Breslau	1.35	1.60	1.10	.31	.32	.30	.30	.30	.28
Cassel	1.32	1.40	1.20	.35	.36	.32	.30	.32	.28
Cologne	1.36	1.50	1.20	.38	.39	.38	.36	.37	.35
Crefeld	1.30	1.40	1.20	.33	.34	.30	.31	.32	.30
Dantzic	1.25	1.50	1.00	.35	.36	.32	.30	.33	.27
Dortmund	1.31	1.50	1.10	.30	.32	.30	.28	.30	.28
Duisburg	1.32	1.50	1.20	.31	.33	.30	.32	.32	.32
Düsseldorf	1.40	1.60	1.20	.32	.32	.32	.30	.30	.30
Elberfeld	1.41	1.70	1.20	.33	.34	.32	.32	.32	.32
Erfurt	1.16	1.30	1.00	.27	.30	.26	.28	.30	.26
Essen	1.34	1.50	1.10	.32	.32	.32	.28	.28	.28
Frankfort-on-the-Main	1.14	1.40	.90	.40	.40	.38	.32	.34	.28
Frankfort-on-the-Oder	1.18	1.40	1.00	.34	.38	.30	.26	.29	.24
Görlitz	1.18	1.60	.80	.32	.34	.31	.28	.30	.27
Halle	1.20	1.40	1.00	.32	.32	.31	.30	.32	.29
Hanover	1.21	1.40	1.10	.31	.32	.30	.28	.28	.28
Kiel	1.37	1.60	1.30	.35	.36	.34	.30	.30	.30
Königsberg	1.24	1.80	.80	.35	.36	.34	.30	.30	.29
Magdeburg	1.16	1.40	1.00	.30	.30	.30	.27	.28	.26
Posen	1.22	1.40	1.10	.29	.29	.29	.22	.23	.21
Potsdam	1.38	1.60	1.00	.41	.42	.40	.32	.35	.30
Stettin	1.30	1.50	1.10	.25	.30	.25	.24	.25	.23
Wiesbaden	1.31	1.60	1.00	.40	.40	.40	.28	.28	.28

Table showing daily wages paid to employés of public works.

Cities.	Gas works.			Street-cleaning.			Waterworks.		
	1888.	1889.	1890.	1888.	1889.	1890.	1888.	1889.	1890
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Aix la Chapelle:									
Locksmiths							3.00	3.30	3.30
Smiths							3.00	3.30	3.30
Masons							3.00	3.50	4.00
Altona:									
Overseers				4.00	4.00	4.00			
Skilled workmen				3.50	3.50	3.80			
Day-laborers				2.75	2.75	3.05			
Barmen:									
Locksmiths	3.50	3.50	3.50						
Joiners	4.00	4.00	4.00						
Skilled workmen				2.50		2.75			
Day-laborers							2.70	2.70	2.70
Berlin:									
Locksmiths	3.50	3.07	3.91						
	3.75	4.00	4.30						
Masons	4.10	4.22	5.00						
	3.75	4.00	4.30						
Skilled workmen	3.80	4.43	4.85	3.00	3.00	3.25		4.00	4.20
		4.00	4.90						
Day-laborers	2.50	2.58	3.00	2.00	2.00	2.00		2.90	3.10
	2.40	2.40	2.80						
Overseer				3.50	3.50	3.75			
Bremen:									
Locksmiths	3.50	3.85	4.00				3.15	3.40	3.50
Masons	3.50	3.85	4.00				3.68	3.93	4.00
Carpenters	3.50	3.85	4.00				3.68	3.93	4.00
Day-laborers			3.00	2.22	2.30	2.30	2.63	2.88	3.00
Lamplighters	1.70	2.00	2.00						
Overseers				3.57	3.57	3.57			
Smiths							3.15	3.40	3.45
Breslau:									
Locksmiths	2.85	2.95	3.10				2.80	2.70	2.90
Masons	3.05	3.10	3.30				3.00	3.25	3.40
Day-laborers	1.85	2.00	2.15	1.50	1.50	1.50	2.20	2.20	2.40
Lamplighters	1.85	1.85	1.85						
Overseers—									
Day work				3.00					
Night work				3.50					
Skilled workmen				1.75	1.75	2.00			
Smiths							3.85	3.15	3.30
Carpenters							2.85	2.95	3.20
Cassel:									
Overseers				2.25	2.25	2.50			
Locksmiths							3.75	3.75	3.75
Smiths							3.75	3.75	3.75
Day-laborers							2.42	2.60	2.65
Cologne:									
Locksmiths	3.25	3.25	3.50				3.25	3.25	3.50
Masons	4.00	4.00	4.00				4.00	4.00	4.00
Carpenters	3.75	3.75	3.80				3.75	3.75	3.80
Day-laborers	2.60	2.70	2.70				2.60	2.60	2.70
Overseers						3.00			
Broom workmen				3.00	3.00	3.00			
Other workmen				2.50	2.50	2.50			
Smiths							3.50	3.50	3.65

Table showing daily wages paid to employés of public works—Continued.

Cities.	Gas works.			Street-cleaning.			Waterworks.		
	1888.	1889.	1890.	1888.	1889.	1890.	1888.	1889.	1890.
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Crefeld:									
Locksmiths	....	....	....	....	....	....	3.50	3.50	3.50
Dantzic:									
Smiths	....	....	2.75	....	....	....	....	....	2.75
Tinsmiths	....	....	3.50	....	....	....	....	....	....
Day-laborers	....	....	1.90	....	....	1.65	....	....	....
Carpenters	....	....	....	....	....	....	....	....	1.90
Dortmund:									
Overseers	....	....	....	3.00	3.00	3.00	....	....	....
Day-laborers	....	....	....	2.50	2.50	2.50	....	....	....
Dresden:									
Overseers	....	....	....	....	4.00	4.00	....	....	....
Day-laborers	....	....	....	2.35	2.50	2.50	....	....	....
Locksmiths	....	....	....	....	....	....	3.48	3.68	3.77
Smiths	....	....	....	....	....	....	3.32	3.32	3.40
Duisburg:									
Day-laborers	2.50	2.50	2.50	2.30	2.30	2.30	2.50	2.50	2.50
Overseers	....	....	....	2.60	2.30	2.60	....	....	....
Erfurt:									
Overseers	....	....	....	2.30	2.30	2.50	....	....	....
Day-laborers	....	....	....	2.00	2.00	2.00	2.50	2.50	2.50
Essen:									
Locksmiths	3.50	3.70	4.00	....	....	....	3.50	3.70	4.00
Overseers	....	....	....	5.00	5.00	5.00	....	....	....
Day-laborers	....	....	....	2.50	....	3.00	....	....	....
Smiths	....	....	....	....	....	....	4.20	4.20	4.20
Frankfort-on-the-Main:									
Locksmiths	....	....	....	....	....	....	3.00	....	3.80
Smiths	....	....	....	....	....	....	3.00	....	3.80
Day-laborers	....	....	....	....	....	....	3.00	....	3.50
Görlitz:									
Locksmiths	2.75 3.00	2.75 3.00	2.75 3.00	....	....	....	....	....	....
Masons	2.55 3.00	2.55 3.00	2.50 3.00	....	....	....	....	....	....
Day-laborers	1.75	1.85	1.95	1.20 1.65	1.75 1.75	2.00 1.75	2.10	2.10	2.10
Overseers	....	....	....	2.25	2.50	2.75	....	....	....
Halle:									
Locksmiths	3.00	3.00	3.20	....	....	....	3.00	3.00	3.00
Masons	3.00	3.20	3.30	....	....	....	....	....	....
Skilled workmen	2.60	2.70	2.90	....	....	....	....	....	....
Day-laborers	2.20	2.30	2.50	2.00	2.00	2.00	2.20	2.30	2.50
Smiths	....	....	....	....	....	....	2.80	3.00	3.20
Hanover:									
Overseers	....	....	....	3.50	3.50	3.50	....	....	....
Day-laborers	....	....	....	1.50	1.50	1.50	2.80	2.80	2.80
Locksmiths	....	....	....	....	....	....	3.30	3.30	3.60
Masons	....	....	....	....	....	....	4.00	4.00	4.00
Kiel:									
Locksmiths	3.00	3.00	3.00	....	....	....	....	....	....
Königsberg:									
Masons	2.50	2.60	2.80	....	....	....	....	....	....
Carpenters	2.70	2.80	3.00	....	....	....	....	....	....
Locksmiths	....	....	....	....	....	....	2.20	2.20	2.70
Smiths	....	....	....	....	....	....	2.25	2.25	2.50
Day-laborers	....	....	....	....	....	....	....	1.70	1.80

Table showing daily wages paid to employés of public works—Continued.

Cities.	Gas works.			Street-cleaning.			Waterworks.		
	1888.	1889.	1890.	1888.	1889.	1890.	1888.	1889.	1890.
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Leipsic:									
Locksmiths			3.25						
	3.35	3.60	3.80						
Masons	3.93	4.05	4.10						
	4.00	4.20	4.40						
Carpenters	3.35	3.45	3.65						
Skilled workmen	3.50	3.50	3.60	3.00	3.00	3.00			
Day-laborers	2.10	2.85	3.00						
Lamplighters	1.50	1.50	1.60						
Overseers				2.80	2.80	3.00			
Lübeck:									
Lamplighters	2.20	2.50	2.50						
Locksmiths							3.00	3.00	3.00
Smiths							3.00	3.00	3.00
Magdeburg:									
Locksmiths	3.00	3.50	4.00				3.00	3.25	3.50
Carpenters	3.00	3.50	4.00						
Skilled workmen	2.50	3.00	3.50						
Day-laborers	2.20	2.40	2.40				2.20	2.30	2.40
Tinsmiths							3.00	3.25	3.50
Mannheim:									
Locksmiths	3.50	3.50	3.50				3.50	3.50	3.50
Day-laborers	2.60	2.60	2.60	2.00	2.00	2.00	2.60	2.60	2.60
Overseers				3.33	3.33	3.33			
Metz:									
Locksmiths							3.30	3.30	3.30
Smiths							3.30	3.30	3.30
Carpenters								2.80	3.00
Munich:									
Day-laborers				2.50	2.65	3.00	2.50	2.05	3.00
Nuremberg:									
Masons			3.00						
Overseers						3.20			
Day-laborers						2.50			
Potsdam:									
Overseers—									
Summer						3.10			
Winter						2.75			
Day-laborers—									
Summer						2.25			
Winter						2.00			
Strasburg:									
Overseers				3.12	3.15	3.11			
Day-laborers				1.84	1.84	2.05			
Stuttgart:									
Locksmiths							3.60	3.60	4.00
Day-laborers							2.70	2.80	3.00

ALBERT H. WASHBURN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Magdeburg, November 3, 1892.

SACCHARINE.

REPORT BY COMMERCIAL AGENT WASHBURN, OF MAGDEBURG.

An industry still young, but unquestionably with a great mercantile future, is that of saccharine, a product of coal tar. It is a substitute for sugar, has none of its bulk, and is so powerful that it is three hundred times sweeter. The history of its discovery is interesting.

In 1879 Dr. Constantine Fahlberg, a Russian by birth, but who had been educated in Germany, became connected with the Johns Hopkins University, in Baltimore. There he conducted a series of experiments on the toluene sulphamides, in order to investigate their oxidation products. The outgrowth of this investigation was the discovery of saccharine. By oxidizing pure orthotoluene sulphamide it was found that it would yield a remarkably sweet compound. The amount obtained, however, was too small to be of any practical value for manufacturing purposes. The problem thenceforth was to find other reactions which would give a better yield of the sweet body. A long and exhaustive series of laboratory experiments, extending through several years, were necessary for the satisfactory development of the chemical process of production. What saccharine really is can best be answered by Dr. Fahlberg himself. In a paper read before the British Association at Manchester in 1887 he defines saccharine as—

> An inner anhydride of orthosulphamine-benzoic acid, which yields salts and ethers entirely different from the orthosulphamine-benzoic acid; in fact, I have succeeded in transforming one into the other, and *vice versa*. If orthosulphamine-benzoic acid be heated, it changes into saccharine with the elimination of water; if, on the other hand, saccharine be subjected to a current of hydrochloric acid gas in the presence of alcohol, the ether of orthosulphamine-benzoic acid is formed, which also yields, on heating, saccharine, with the exception that in this case not water but alcohol is eliminated.

As might be expected, a discovery of such practical utility had to run the gauntlet of much hostile criticism. It formed a fruitful subject for discussion in various scientific societies and journals. Attempts were made to show that it was not only deleterious, but dangerous. It is only fair to say, however, that these arguments seem to have been successfully controverted. An overwhelming mass of expert testimony is recorded in favor of saccharine. Eminent professors like Sir H. E. Roscoe, in London; Leyden, in Berlin; Paul, in Paris; von Barth, in Vienna; and a host of others, after thorough tests, have certified that the effects of saccharine upon the physical and psychical functions of the brute and human systems are entirely harmless.

Saccharine in its pure condition is a white powder. Various exclusive advantages are claimed for its use in the arts, household, and medicine. To enumerate a few: It is so small in bulk that the saving in storage and freight is, of course, very great; its valuable antiseptic qualities make it especially available in preserving, as well as sweetening, articles of food, such as jellies, fruits, etc.; its nonfermentable character. In the distilling of brandies and liquors and in the brewing of beer saccharine has been used with signal success. Mixed with glucose, saccharine has a sweetness equal to the finest refined sugar. Further, saccharine serves a distinctly medical purpose. It is employed to disguise the unpleasant taste of medicine and in the preparation of medicated wines and other cordials. It has also been highly indorsed as a substitute for sugar for those suffering from diabetes and from fatness. Unlike sugar, it does not go to form surplus nourishment. Finally, it may be added that this highly concentrated sweetening substance requires only a little intelligence to be successfully used in the household.

Saccharine should never be taken in a pure state. Some idea of its power will be conveyed when it is understood that one part of it will give a very sweet taste to ten thousand parts of water. Tasted in too large a quantity, as Dr. Fahlberg observes, it acts upon the nerves in such a way as to paralyze the sense of taste, just as powerful music stuns or deadens the auditory nerves or a bright light acts upon the optic nerves.

Dr. Fahlberg has, in connection with his partners, devoted himself of late years to the placing of this commodity on the market in practical form. It is manufactured and put up in three ways, viz, pure saccharine powder, easy soluble saccharine in gravel form, and saccharine tablets. The two latter preparations contain a small percentage of bicarbonate of soda and are more available for cooking purposes.

The factory—and, so far as I am informed, it is the only one of its kind existing—is at Salbke-Westerhüsen, on the Elbe.

Patents have been obtained in most civilized lands, and monopolies of sale (which debar the manufacturers from selling direct) exist in many countries, including the United States. The American agents are J. Movius & Son, New York. Up to the present, however, the American trade has been inconsequential. In 1891 the export to New York was only about 800 kilograms (1,800 pounds approximately), while during the same period 7,200 kilograms were shipped to England. I understand that the owners would erect a factory in the United States should the state of the trade ever warrant it.

ALBERT H. WASHBURN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Magdeburg, September 20, 1892.

SPANISH TRADE.

REPORT BY CONSUL BOWEN, OF BARCELONA.

The total Spanish trade, including importations and exportations, during the first nine months of 1890 amounted to 1,172,432,191 pesetas;* 1891, 1,187,126,180 pesetas; 1892, 1,132,160,207 pesetas. The increase in 1891 was owing to the large exportations of wine that took place before the termination of Spain's treaty with France and to the large importation of cotton. The decrease in 1892 was owing to the small exportation of wine because of the failure of Spain to establish a satisfactory treaty with France and to the great rise in exchange, which was followed by rapid fluctuations and which tended to restrict nearly every kind of trade.

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* 1 peseta=19.3 cents.

In spite of the great natural resources of Spain, her importations always exceed her exportations. In 1890 it was by 34,784,077 pesetas, in 1891 it was by 79,910,054 pesetas, and in 1892 it was by 62,230,043 pesetas, during the said period of nine months.

The following tables show the importations and exportations, classified in the customary Spanish way, and the additional details are those that are of special interest to Americans:

Table showing imports into Spain and the Balearic Isles during the first nine months of 1890, 1891, and 1892.

Articles.	1890.	1891.	1892.
	Pesetas.	*Pesetas.*	*Pesetas.*
Stones, minerals, crystals, and ceramics	54,570,390	62,039,618	57,382,646
Metals and manufactures thereof	32,980,997	26,857,443	22,779,544
Drugs and chemical products	39,531,237	41,324,372	37,059,684
Cotton and manufactures thereof	55,094,989	76,995,246	76,057,866
Other vegetable fibers and manufactures thereof	23,265,025	24,775,690	25,331,899
Wool, skins, and manufactures thereof	27,031,852	32,162,244	32,413,943
Silk and manufactures thereof	13,365,666	14,146,599	15,552,565
Paper and applications thereof	6,806,952	7,784,339	7,733,625
Wood and manufactures thereof	39,884,900	37,584,418	41,404,647
Animals and parts thereof	32,944,756	35,404,488	28,017,392
Machinery, carriages, and boats	38,657,945	38,361,293	43,270,459
Alimentary substances	166,323,887	143,139,056	129,782,545
Buttons, playthings, amber, etc	5,018,455	5,502,379	4,814,356
Miscellaneous	68,131,083	87,440,932	75,593,954
Total	603,608,134	633,518,117	597,195,125

Table showing the exports from Spain and the Balearic Isles during the first nine months of 1890, 1891, and 1892.

Articles.	1890.	1891.	1892.
	Pesetas.	*Pesetas.*	*Pesetas.*
Minerals and ceramics	76,547,874	61,483,104	63,972,328
Metals and manufactures thereof	91,402,496	80,831,633	114,673,040
Drugs and chemical products	20,074,842	21,005,818	23,008,569
Manufactures of cotton	18,585,922	20,668,265	29,417,128
Manufactures of other vegetable fibers	1,635,417	2,906,542	4,319,797
Wool and manufactures thereof	9,215,242	8,333,399	12,702,554
Silk and manufactures thereof	2,499,697	3,074,554	4,575,977
Paper and applications thereof	7,825,667	6,567,888	8,463,929
Wood, cork, feather grass, and rags	23,788,904	26,916,686	24,998,272
Animals and parts thereof	33,915,755	34,281,715	30,202,413
Machinery	693,962	674,275	343,592
Alimentary substances	280,048,134	285,094,691	215,990,871
Fans, cards, wax matches, and hemp shoes	2,590,145	1,769,493	2,296,612
Total	568,824,057	553,608,063	534,965,082

Table showing imports by articles into Spain and the Balearic Isles during the first nine months of 1890, 1891, and 1892.

Articles.	1890.	1891.	1892.
Wheat:	*Pesetas.*	*Pesetas.*	*Pesetas.*
United States	131,699	4,080	81,451
France	2,541,634	1,730,924	1,042,560
Russia	13,817,023	17,818,790	4,628,551
Turkey	2,892,826	3,539,476	2,903,907
Other countries	1,204,707	2,819,240	1,246,210
Total wheat	20,587,889	25,912,510	9,908,679
Petroleum:			
Crude	7,544,902	7,499,752	6,273,601
Refined	482,394	147,980	169,590
Staves	11,371,674	10,528,369	13,797,689
Machines, agricultural	606,442	747,319	322,731
Cotton, raw	42,793,975	64,314,972	63,991,079
Pork	592,000	917,900	210,600
Brandy	19,942,960	16,419,219	9,384,336
Wine:			
Sparkling	684,500	890,500	921,280
In casks and bottles	1,718,100	1,334,400	1,051,377

Table showing the exports by articles from Spain and the Balearic Isles during the first nine months of 1890, 1891, and 1892.

Articles.	1890.	1891.	1892.
	Pesetas.	*Pesetas.*	*Pesetas.*
Licorice	775,497	714,159	771,611
Tartar	8,590,072	9,698,484	8,820,094
Cotton, manufactured	18,585,922	20,668,265	29,417,128
Wool, dirty	6,287,730	5,284,439	6,966,359
Cork:			
Plain	831,414	1,248,227	1,221,554
In squares	72,480	95,500	350,120
For bottles	16,036,594	18,960,410	18,247,681
Pork	430,000	684,800	147,700
Sardines	1,371,160	1,603,338	1,220,768
Wheat	118,611	121,162	2,796
Onions	1,565,918	1,112,375	1,020,847
Lemons	601,762	206,709	323,841
Oranges	11,893,166	7,059,723	8,817,174
Grapes	4,200,412	5,574,580	3,150,796
Olive oil	10,687,568	8,279,150	10,496,733
Brandy and spirits of wine	862,934	747,036	638,260
Wine:			
Common	176,239,110	189,008,375	116,874,325
Sherry and its like	20,253,740	20,202,390	29,322,540
Fine	4,092,950	2,723,310	1,413,550
Fans	909,235	623,850	720,375
Cards	763,996	623,163	546,925
Books and music	1,658,151	1,684,010	1,614,317

HERBERT W. BOWEN,
Consul.

UNITED STATES CONSULATE,
Barcelona, November 6, 1892.

AMERICAN-PERUVIAN TRADE.

REPORT BY CONSUL DAUGHERTY, OF CALLAO.

INTRODUCTORY REMARKS.

I have the honor to forward herewith a report concerning the trade of the United States with Peru and setting forth in what respect the manufacturers of the United States fail to comply with the demand of consumers in this consular district.

It would be hard to explain to the Department all the difficulties to be met with in securing reliable information such as it requires. So little of the business of Peru is in the hands of American merchants that most of the information must be sought from foreign merchants who have little sympathy with our efforts in this direction, and I found few of those best acquainted with the facts willing to give me the time and attention necessary for the work. I have found, as will appear in different parts of this report, that the Peruvian merchants show preference for European goods, more on account of the more favorable credits given by European merchants and the lower freights enjoyed on goods from all European countries than on account of the success of European manufacturers in catering to the tastes and peculiarities of the people of Peru in the preparation of the goods for market or in their decoration and packing. I must say, however, that from personal observation I have discovered that the European merchants pack their goods much more neatly and securely than do those of the United States. A visit to any wholesale establishment where they are unpacking goods from different countries will demonstrate in a way that is hard to explain in words what this difference in favor of European packing is.

Merchants to whom I have propounded questions on this subject answer me as follows:

> American goods are usually put up in a way that suggests haste. They seem to be packing as though the goods were for shipment to near points rather than to a distant country and for frequent handlings. The European merchant employs the very best packers, and the goods show in their arrangement in the cases that the utmost care has been taken to guard against abrasions and breakages by screws and cleats and the judicious use of shoddy and felt bandages, paper and excelsior packing and wrappings. Every case will show that much time and the utmost care has been taken in the packing, while in the case of the American goods this is the exception rather than the rule.

I can not give any rules for packing that would be useful for all classes of goods. It is well understood that American houses know how to pack, but they are careless and use too many old boxes. All our shippers know that everything in this way depends upon the packer, and they know as well as anyone can tell them that the first and the absolutely necessary thing is to get men for packing who understand their business and who will perform their work well.

I may say that I have myself seen boxes containing elegant furniture from the United States opened here, and so careless were the men who did the packing that great, coarse nails were driven into the most elaborately finished parts of the furniture. Carelessness of this sort, if reported to a European house, would result in the discharge of a packer. It should be the same with the American houses that export.

I find that this subject was thoroughly canvassed by the commission from the United States that interviewed Peruvian merchants in 1885, and it is the opinion of business men here that our shippers have improved since then in this direction, but that there is still room for greater improvement in our packing.

COTTON AND WOOLEN GOODS.

The great bulk of trade with Peru has been for years in the hands of the English, Germans, French, and Italians. Large mercantile houses established many years ago in different parts of this country—in fact, at all the trade centers—by citizens of the countries named above enjoy satisfactory business relations with merchants and manufacturers at home and low rates of freight on lines of subsidized vessels established to accommodate and foster trade with the west coast of South America. These foreign merchants make credits most favorable to the trade of the coast, and the vessels referred to make rates to protect, support, and extend the trade. It is but natural under these conditions that European merchants should have the preference. Even where we could compete in prices in the line of goods mentioned above, there are still these natural trade disadvantages to surmount in the introduction of our merchandise. I have made personal inquiries at the stores and among importers, and I put into the hands of various dealers lists of inquiries, neatly prepared on the typewriter, with a view to securing prices paid abroad, with freights and other information that might aid in arriving at the actual difference against purchases of the same class of articles in the United States. These were returned, although in some cases the work was paid for, with no figures whatever on most of the sheets, but with general observations by the writers why preference is given to other countries. I am thus forced to confine my report to such general information as I could procure, to personal inquiries as to prices, and to the use of the official reports of the minister of the hacienda for comparison of imports from the several countries named.

In the comparisons of imports herein made it should be remembered that the values, where these are used, are the arbitrary values placed in the Peruvian tariff for estimating duties only. These are really no guide for ascertaining the actual value of the goods imported, since it is not claimed that they are the true invoice values. As an illustration: Ready-made clothing and ladies' dresses are classed in the tariff under eleven heads, valued from 4 to 150 soles* per suit. The duty is 45 per cent on each class. The receiving house here manifests to the custom-house for each box of goods, stating the class of goods in each. The box is opened at the custom-house and the goods compared with the manifest made by the receiving house. The consular invoice is seldom referred to. A suit that may have cost $200 in the country from whence imported takes simply the highest valuation given in the tariff—150 soles. From valuations thus made the records of imports are made up, and must be more or less inexact. Where valuations are given in this report the comparisons are for this reason only approximate. In the main I have used the measurements, which better represent the extent of importations.

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*1 sol=85 cents.

The following are the values of importations from all countries during the years 1890 and 1891:

Articles.	England.	Germany.	France.	United States.
	Soles.	*Soles.*	*Soles.*	*Soles.*
Cotton goods of all kinds	496,000	112,000	49,700	9,000
All kinds of woolen manufactures	185,000	81,000	65,000	3,000
Spool and machine thread (spools and balls) and cordage	13,600	13,000	3,500	800

The following are the principal articles comprising the imports from the United States under this head: Drillings, muslins, yarns, thread in spools and balls, sailcloth, lamp wicks, handkerchiefs, shawls, laces, sheetings, towels, and calicoes. The shipments of the last named were very small. The importations of sailcloth, lamp wicks, and sheetings were much greater than in any other article. I am assured that the importations of thread from the United States for the past year will be much larger; but the reports are not yet published, and I have no way of obtaining the official figures. There is practically the same diversity of opinion among those friendly to trade with the United States as to the best way to increase it as existed when the commission of 1885 was here making inquiries on that subject. The conditions are very much the same, with the exception that credits in Europe are more easily obtained than then. I should say, perhaps, that the credits were better until the phenomenal decline in silver came. Since then, I am told, they are not so good; but they are still far better than can be obtained in the United States.

When making inquiries among the merchants I have frequently been asked: "Why don't your merchants have agents here, as the merchants of other countries have, with authority to quote prices and with samples, or, what would be better, with the actual goods on sale here in Peru?" I may say that during the two years I have been in Peru, while I have met some traveling salesmen in other lines, I have never seen one offering dry goods or goods mentioned in the class under consideration. It is in this class of goods, too, in which European credits operate to our disadvantage. I know it was said by parties interviewed by the commission in 1885 that merchants could get as good credits in the United States as in Europe, but my inquiries lead me to believe that just the contrary is the truth. I have it from reliable merchants that the manufacturers and dealers in the United States give a credit of at most thirty days after presentation of draft. If the goods come by steamer, this means payment in about ten days after receipt of the goods; if by sailing vessel, it means payment about seventy days previous to receipt of the goods. Shipments coming from Europe by steamer either via Panama or via the Straits of Magellan arrive at Callao in about forty-five days; if by sailing vessel, the time is from eighty to one hundred and twenty days. But as European merchants draw at ninety days from arrival of goods as a rule, the advantage to the Peruvian dealer in favor of purchases in Europe is apparent.

The following quotation from a letter I received from a gentleman who has been identified with business interests on this coast for many years, who has an intimate acquaintance with trade matters, and who is at present doing business in Lima expresses what I find to be the general sentiment of the best-informed people on the subject. He says:

> When American manufacturers care to reach for the trade in Peru, and, for that matter, for that of the South American republics on the west coast, they need only grant the same terms offered by their European rivals and support a line of steamers via the straits at reasonable freights, and then they will command the trade in certain articles and have a fair share of all the trade. I speak from thirty-seven years' experience in South American countries, and point to the trade between the United States and Brazil since the establishment of lines of steamers to that country as proof of what I say. All the rest is words, idle words, and will never make trade or induce buyers to deal less with Europe or more with the United States.

The writer seems to forget or to ignore the more favorable conditions in Brazil that made possible a treaty of reciprocity between that country and the United States and the absence of such conditions here; but as to the necessity of steamship connection, without which favorable freight rates between the United States and the west coast are positively impossible, he voices the feelings of nearly all the friends of American trade with whom I have conversed. While touching on the subject of freights, I may say here that I have just ascertained that, while freight rates from Europe on laces and all the finer goods have generally been higher than on coarse goods, the sharp competition in freights that set in early in 1891, and attributed in great part to the effects of the McKinley tariff and treaties of reciprocity, and which competition has continued with constantly decreasing rates ever since, has resulted in forcing freights to that before-unheard-of point at which charters are possible and have been made from France and Italy for cargoes as low as 15*s*. per ton, including at this figure any kind of goods, even silks and laces.

All merchants agree that the freights via the isthmus are so high as to be almost prohibitory, to say nothing of the careless handling of goods in transshipment across the isthmus. This entails as a rule, I am told, severe losses by breakage and other injury. This objection to the isthmus route applies with equal force to goods from Europe; but the rates from Europe via the isthmus are nearly one-half less, it is claimed, than from New York. One of the leading American houses characterizes the handling of goods on the isthmus as shamefully reckless and totally regardless of the interests of owners, entailing damages that retard, if they do not altogether prevent, their sale. They say:

> You can not make this too strong. We have seen boxes containing sewing machines and castings that are easily broken thrown 10 feet from the ships into launches to avoid loss of time necessary to give them careful handling, and we have protested in person against such carelessness. But protests avail nothing, and when bills for damage are presented one company endeavors to cast the blame on the other; and the result is that if investigation is made at all the shipper only hears of it a long time afterward, and then he gets neither assurance against future damage nor reimbursement for past losses.

I find this complaint general against the isthmus route, and it is not used unless necessity compels. I have heard that the Pacific Mail has made a reduction in carrying charges on sample trunks of traveling men visiting South America, but I have never heard of any rebates made to actual shippers who are purchasers. With a line of steamers from San Francisco to Valparaiso and from New York to the west coast, or even one of these, our exports to South American republics on this coast would soon show a very great improvement without the shadow of a doubt. Of course, this suggestion includes the making of rates of freight equal to those from Europe and a system of credits as favorable as offered by European merchants. It can hardly be doubted either that the introduction of competition of this character would result in the lowering of rates by the English steamships especially and the inauguration of a war of rates that would strongly test the endurance of the new competitor, even with a subsidy to assist it. Whether or not the trade of this coast is worth the cost is a question for deeper inquiry. Unless, however, we intend to surrender entirely the trade on this coast, we must sooner or later enter upon such a fight.

WOOD MANUFACTURES.

There are several small establishments in Callao and Lima where these articles are manufactured; but the demand in this direction is small, and the tastes of the people still incline to a heavy, antiquated pattern of carriage not seen in the United States. The roads outside of the cities, with the exception of the road between Callao and Lima and short stretches of road in the immediate vicinity of these cities, are not suited to the use of carriages for pleasure riding; and, in fact, there are no roads anywhere in Peru, so far as I have observed or been able to learn, that are. I have seen but two buggies since I came to Peru, and these are regarded by the people who have not traveled as curiosities and in no way desirable. Even if the roads were favorable, the buggy would still be tabooed by custom, which, while it recognizes the propriety of a gentleman or lady riding a horse and holding the reins, declines to permit either to hold the lines and manage a horse when attached to a vehicle.

A carriage such as is used by private parties in Lima—that of the best manufacture—costs from 800 to 1,000 soles. Immense carts of very heavy construction, with two wheels of ponderous dimensions, drawn by mules or horses or both, one in the shafts and one on a side, compete with the two railroads between Callao and Lima, a distance of about 8 miles, in the transportation of all classes of freights, and do so successfully, because the shipper thus avoids the expense of handling by cart from the depots at Lima and has the goods delivered by cart from the docks or the custom-house directly at his door. The cost of these carts is: For one horse, from 80 to 100 soles each; for three animals, from 150 to 180 soles each. These, as well as carriages of the coarser kind for public use, are made in the country, and a duty of 45 per cent ad valorem is charged to protect the industry. A New York truck would carry more goods with two horses and with less wear on the animal, but the men engaged in the business say that the rough condition of the roads causes too many breakages of springs, which are very expensive, and that the wheels of our trucks are not stout enough for this remarkably dry climate. In spite of this opinion, there are now in use quite a number of light wagons on springs, which are used by bakers and small dealers, being similar in construction to our grocery delivery wagons, and these seem to give general satisfaction.

I can not but believe that there is an opportunity both in Lima and Arequipa for the introduction of the cab in use in American cities for passenger service. If a few could be introduced on trial, I am satisfied that, in increased comfort to the public over that afforded now by the heavy, rickety, and antiquated article in use, in superiority of style, in ease to the animals, and in economy to the owners, they would so recommend themselves as to entirely supplant the lumbering carriages used in Lima. There are at present no public conveyances used in Arequipa, except street cars.

Knocked-down work for carriages, wagons, carts, and trucks might be sold here, but that would be purely a matter of experiment. Carriages are among the very few articles upon which duties are strictly ad valorem, and the duty is 45 per cent.

DRUGGISTS' WARES.

The cities of Lima, Callao, and Arequipa are well supplied with drug stores kept by Germans, French, English, and Italians; and, all other things being equal, the proprietors will naturally trade with their respective countries. The inequalities as to credits and freights are an added influence against the growth of trade in this line with the United States. I have not seen a drug store kept by an American in either of these cities, nor even an American employed in a drug store. There are some American specialties which can be found in almost any of these stores. The trade in drugs and medicines with our country will increase only when an effort is made to introduce our most salable products by the same studious and painstaking methods pursued by the merchants of other countries. Many could be put upon the market at once, even with the disadvantages of freights and credits to contend against, if the proper effort was made. I find in the report of the commission of 1885 that many dealers here advised against the use of the traveling man, alleging that goods were often sold by sample and the shipment failed to reach the standard of the quality of the sample. To obviate that difficulty, goods might be sent on commission to the best and most reliable houses until their quality is tested. There are still other ways, but this matter will be referred to hereafter. It is a matter of almost daily occurrence to find people who have become acquainted with some of our products in this line asking for them at the drug stores, and I have been often asked if it were possible to procure certain American medicines in Peru.

The following are the imports for the years 1890 and 1891, the latest published data, in values fixed by the tariff for levying duties, not the actual value, which is far in excess of this, I am assured, and not invoice values:

	Soles.
England	13,000
Germany	11,000
Italy	9,000
France	6,000
United States	1,800

Among the medicines and goods in this line there were imported from the United States the following: Medical oils, antipyrine, collodion, barks, magnesia, lozenges, powders, roots, soda, tinctures, vaseline, food for children, cholagogue, elixirs, emulsions, ergotine, corn cures, essences, phosphates, sirups, pain killer, homeopathic remedies, caustics, medical pastes, porous plasters, medical pearls, pills, quick relief, gold remedy, seidlitz powders, ointments, wines, and sarsaparilla.

Peruvian law does not permit the practice of medicine by those who have not diplomas from institutions of the allopathic school, and, although there are a few practitioners of the homeopathic faith, and with increasing patronage from the best classes, the regular Medical College of Lima has taken measures to put an embargo upon the practice. One of the leading physicians of this school is considering the advisability of removing to the United States. The move on the part of the college referred to may interfere seriously with the trade in homeopathic medicines.

The druggists whom I have interviewed say that the drug merchants of the United States have never made a special effort to extend trade here, nor have any inducements been offered to dealers here so far as I can learn.

ALIMENTARY PRODUCTS.

There are no privileged products in Peru; all pay duty. During the late war in Chile, such had been the dependence of Peru on Chile for supplies of this sort, that, cut off suddenly from this source of supply by war, prices of the necessaries of life advanced so rapidly that the Peruvian Government issued an order suspending for a time all duties; and during this period large consignments of wheat, flour, meats, vegetables, and other necessaries came from the United States and other countries. This continued, however, but a short time. Since the close of the war in Chile trade has resumed its old channels, and all the duties are again in force.

The duty on wheat is 1 sol on 217 pounds, or 27.6 centavos per bushel of 60 pounds. Peru imports from Chile yearly from 800,000 to 900,000 bushels of wheat. The freights are usually from 8*s.* to 9*s.* per ton, though now and for many months past they have been much lower. The present cost of wheat from Chile is about 6*s.* 6*d.* per quintal of 101½ pounds laid down in Callao. The cargoes brought here during the war referred to from the United States came from Portland, Oregon, and San Francisco, on which the freights were 27*s.* 6*d.* per ton. Now vessels are glad to get 20*s.* per ton, and, I doubt not, charters might be made even lower. This is equivalent to 13 cents per bushel from San Francisco to Callao, against a fraction over 5 cents from Chile. A vessel lately arrived from England with a general cargo brought it at 14*s.* 6*d.* per ton from Liverpool to Callao, which, if the cargo were wheat (and I am told wheat could have been contracted at the same figure), would have been equivalent to 9½ cents per bushel. The freight from Liverpool is a trifle higher just now, though 17*s.* is easily obtained, which is equal to about 11 cents per bushel.

Barring the conditions imposed by war or special reciprocity arrangements between Peru and the United States, the possibilities of which are again being discussed in the Peruvian press, Chile will undersell us in this market in most of the products of the farm, although the Walla Walla and Blue Stem varieties of wheat from Oregon and California are regarded as superior to the Chilean wheat, and would, with more favorable rates of freight, be more largely used in Peru.

As will appear from the table given herewith, we have almost the entire trade in lard, notwithstanding the fact that the duty was advanced in 1890 to about 7 centavos per pound. The duty was advanced ostensibly for the encouragement of the Peruvian farmer in the raising of hogs, which product of the farm had fallen into almost entire neglect, owing to the large imports of American lard. The result has been unquestionably the stimulation of hog-raising, as well as a substantial benefit to the public treasury, which is much in need of revenue.

There are some products of our farms in a more or less advanced stage of manufacture which should be sold here even now in competition with Chile. Bacon, dried meats, our best qualities of butter, fruits (canned and dried), and cheese should have a much greater sale, and would have if effort were made in this direction. With steamship communication and rates that compete with other countries the problem is solved at once.

The best butter comes from Chile and sells at retail just now for 90 cents in silver per pound. The range is from 75 cents to 1 sol per pound. Butterine or oleomargarine sells for 55 cents in silver per pound in cans. Butter comes, as well as butterine, in cans from Europe weighing 1, 2, 7, and 14 pounds, respectively. The table of imports below will show where these articles come from. The duty on both these products is 40 cents in silver per kilogram, or about $18.40 in American gold per 100 pounds.

California fruits in cans will outsell any other, and I can not see why the California canners do not take advantage of this preference for their product. Canned goods are sold in large quantities to the ships, as well as to the residents of the country, and I have seen purchasers looking for California fruit so often that I can not but think the California product should have attention. If properly looked after, the Californians might command this trade.

The report of importations in this line given below is made up from the official report of the minister of the hacienda for the years 1890 and 1891. I have waited a long time to get the report for 1891 and 1892, but, as there seems to be no immediate prospect of securing a copy, I give the figures from the latest official records at hand. The wheat importations do not contain the total importations from Chile, and, having found from the records of the millers that they greatly exceed those given in the official records, I have substituted the latter.

Table showing the quantities of importations of food products into Peru.

Articles.	Whence imported.	Quantity.
		Kilograms.
Olive oil	England	1,500
	Italy	39,200
	France	1,300
Olives	England	1,487
	France	1,282
	China	1,583
Starch, paste or powder	Germany	2,445
	England	618
	Belgium	3,550
Salt meats	United States	2,514
	Chile	300
Barley malt	Germany	6,000
	United States	96,000
	Chile	291,000
Cherries, bottled and tinned	United States	565
Prunes, dried	France	3,000
	Chile	1,500
	England	700
Preserves	Germany	4,800
	England	6,600
	France	6,407
	Italy	8,115
	Spain	1,100
	United States	9,900
Corn flour	Germany	520
	England	400
Preserves in sirup	Germany	914
	England	514
	France	3,260
	Italy	4,972
	Spain	538
	China	665
	United States	581
Pickle, vinegar and salt	Germany	211
	England	6,600
	France	800
	Italy	37,800
	China	15,400

Table showing the quantities of importations of food products into Peru—Continued.

Articles.	Whence imported.	Quantity.
		Kilograms.
Meat extracts	Germany	64
	England	180
	France	25
	United States	15
Beans	China	1,786
Biscuits without lard	Germany	1,025
	England	4,200
	Italy	1,325
	United States	335
Dried cherries	do	886
	Chile	4,900
Wheat flour	England	402
	Chile	42,650
Oat and rice flour	Germany	600
	England	1,225
	China	895
Dried peaches:		
Without stones	United States	923
	Chile	7,400
With stones	do	2,800
Hams	Germany	879
	England	14,300
	France	1,410
	Italy	642
	United States	3,000
	Chile	2,250
Conserved milk	England	2,350
	France	890
Lard	England	53
	United States	391,900
Butter	Germany	636
	England	800
	France	1,768
	Italy	2,350
	United States	2,396
	Chile	806
Potted soups	England	1,242
	France	200
	China	3,740
	Chile	6,800
Mustard, prepared and in powder	England	2,140
	France	3,960
	Germany	212
Potatoes, fresh and dried	Chile	76,100
Raisins	England	725
	Italy	1,116
	United States	1,200
	Chile	15,200
Fish, dried and smoked or in salt	Germany	1,900
	England	5,000
	France	2,129
	Italy	14,600
	China	4,473
	United States	5,062
Cheese	Germany	1,250
	England	600
	France	480
	Italy	15,800
	Belgium	1,250
	United States	224
	Chile	20,800

Table showing the quantities of importations of food products into Peru—Continued.

Articles.	Whence imported.	Quantity.
		Kilograms.
Salt, in grain or ground	England	8,174
	China	163
Sardines in tins	Germany	14,600
	England	2,700
	France	19,700
	Italy	2,700
	Belgium	6,100
	United States	650
Sausages	France	3,400
	Italy	650
	Chile	800
Bacon	England	344
Wheat	Italy	72,500
	Australia	506,000
	Chile	21,768,000
Barley	Germany	6,167
	United States	96,081
	Chile	297,314
Vinegar in barrels	Germany	2,260
	England	169

The cargoes of wheat brought from the United States during the war in Chile did not reach Peru until too late to figure in the official records.

The duty on salt meats is 10 per cent on a valuation of 10 cents per kilogram; on barley, 10 per cent on valuation of 2 cents per kilogram; on barley malt, 10 per cent on valuation of 3 cents per kilogram; on prunes, 40 per cent on valuation of 15 cents per kilogram; on prunes in boxes, 40 per cent on valuation of 30 cents per kilogram; on preserves, 40 per cent on valuation of 30 cents per kilogram; on biscuits, 65 per cent on valuation of 6 cents per kilogram; on wheat flour, 3½ cents per kilogram; on hams, 40 per cent on valuation of 40 cents per kilogram; on lard, 15 cents per kilogram; on butter in tins, 65 per cent on valuation of 40 cents per kilogram; on potatoes, 10 per cent on valuation of 5 cents per kilogram; on fish in tins, 10 per cent on valuation of 20 cents per kilogram; on cheese, 65 per cent on valuation of 20 cents per kilogram; on sardines, 40 per cent on valuation of 25 cents per kilogram.

HOUSE FURNISHINGS.

The duties on furniture are as follows: Benches, chairs, armchairs, and sofas, 5½ cents per kilogram; the same covered with lawn or shag, 6¾ cents per kilogram; the same of American walnut, varnished or polished, 9 cents per kilogram; sideboards, bedsteads, chests of drawers, writing desks, wardrobes, washstands, with or without marble or looking glasses, 9 cents per kilogram; furniture of American walnut, polished or varnished, 11¼ cents per kilogram; furniture of fine wood, such as mahogany, cedar, walnut, sandal, or other choice woods, 27 cents per kilogram; the same covered with any kind of wool, silk, etc, 45 cents per kilogram; furniture adorned with mother-of-pearl, 54 cents per kilogram. All of the above duties are on the gross weight.

The following are the importations into Peru during the years 1890 and 1891 in the line of goods under this head:

Articles.	Whence imported.	Quantity.
		Kilograms.
Furniture	Germany	16,090
	Belgium	4,753
	France	3,784
	England	876
	United States	72,739
Carpets	Germany	292
	England	240
	France	267
	United States	60
Moldings	Germany	5,000
	France	3,951
	Belgium	1,233
	United States	1,503
Picture frames	Germany	57
	France	39
	United States	76
Oilcloths	Germany	1,198
	England	8,337
	France	582
	United States	995
Statuettes and fancy adornments	Germany	2,648
	England	138
	France	10,412
	Belgium	115
	Italy	334
		Dozens.
Looking-glasses	Germany	2,590
	England	78
	France	598
	Belgium	912
	United States	746

The duties on moldings range from 4.8 cents to 60 cents per kilogram, according to size and gilding.

Cooking stoves of cast iron pay a duty of 5.2 cents per kilogram, and in 1890 and 1891 came wholly from the United States. They sell high in Peru, and comparatively few are used. Coal and coke are very dear, though just now they are cheaper than for years. Soft coal retails at 18 soles per ton and coke at about the same figure. The most of the common people do their cooking on small cast-iron pots that hold a half peck of coke, and over the fire is placed a little grate. Coke is mostly bought by the sack of 100 pounds and costs 1 sol per sack. Great use is also made of small sheet-iron stoves, in which rum is burned in cups. This rum is made from the sugar cane, and can be bought for 50 to 60 cents per gallon. These latter stoves come from Germany, France, and the United States, and cost but a trifle. A cast-iron stove which would cost not to exceed $8 in the United States sells here for 30 soles.

American furniture has gained a foothold which, from all indications, it will retain. Its superior style and finish recommend it to the higher classes, and I have noticed that at sales which I have attended the American furniture elicits the liveliest bidding and always brings prices nearer its value than furniture from any other country.

Hangings and drapings still come principally from France.

The duties on carpets are 24, 30, 32, 40, 50, and 80 cents and 1 sol per kilogram gross weight, according to quality. It is impossible to make comparison of goods offered here with our manufactures without the use of samples. The small importations for the years herein given are accounted for, no doubt, by the fact that there are already good stocks on hand, and the trade is not good, owing in great part to the general business depression that affects all the industries of the country. All merchants complain of the sluggishness of trade. The depreciation of silver is the heaviest blow to Peruvian interests. When I came here in November, 1890, exchange on New York was at 32 per cent, while now it is 70 to 75 per cent. In other words, the silver dollar of Peru, which was then worth for purposes of exchange 76 cents in gold, is now worth about 58 cents. And yet, such is the anxiety to realize on stocks, goods are sold in many cases at the same figure as then.

IRONWARE, HARDWARE, ETC.

Hardware generally, classes and qualities considered, can be bought, I am told by one of the best English houses in Lima, at quite as satisfactory prices in the United States, but the freights from the United States are much higher—so much higher that many classes of goods in this line are bought in Europe solely to save the loss in freights. However, the terms in Europe when credits are desired are also better than in the United States. The house referred to is perhaps the largest of the kind in Peru, and has quite a fair stock of American goods.

I have propounded this question in my tour of dealers, while seeking information for this report: "Are the prices in the United States higher for the same class and quality of goods in the hardware line than those of other countries?" and the answer almost invariably is, "No; it is not the prices of your goods that interferes so much with trade with your country, but the freights from America kill your trade." This is the evidence of foreign and American merchants generally. The firm alluded to above tell me that they pay 20*s.* per ton by steam on hardware generally from England via the straits and a trifle more from the Continent; while from New York by steam around by the straits the rate is 45*s.* They get hardware from England on Royal Mail steamships via Colon and Panama at 40*s.* per ton, while from New York the rate via the Panama route is 2*s.* per cubic foot, or about 80*s.* per ton; and this is the tariff now in force (September, 1892) between New York and Callao.

As to freights, spoken of above, the comparison there given via the straits is correct for 1890 and a part of 1891, but not for 1892. In the month of July, 1892, charters were made as follows, and these figures I have verified from reliable records:

Steamers from New York to Callao, 35*s.* 6*d.* per ton. One charter for steamer was made as low even as 27*s.* 6*d.* per ton for five ports, while sailers were chartered at 22*s.*, and one as low as 17*s.* 6*d.* per ton to Callao. At the same time there were charters by steam from Liverpool to Callao for 30*s.*, and even as low as 17*s.* 6*d.* for both steam and sail, 5 per cent primage in all cases mentioned in addition.

These rates are exceptional, if not unparalleled for cheapness. Besides, they do not constitute a fair basis for comparison in an effort to ascertain the usual advantage obtained in freights by the European competitor in reaching the Peruvian markets. A fair comparison is an average rate, which for the past five years prior to 1892, or to the summer of 1891, would be 26*s.* to 27*s.* per ton by sailer from New York to Callao and 40*s.* per ton by steamer, as against 20*s.* to 25*s.* per ton by sail from England and the Continent and 30*s.* to 35*s.* per ton by steam via the straits.

The comparison above of freights via Panama are correct, and plainly show that trade with South America can not reasonably be expected to improve under the tariffs in force via the Pacific Mail, which line has never, so far as I can learn, contributed in any way to the betterment of trade with countries south of the isthmus.

In the matter of cut, wrought, and wire nails, the last named are purchased mainly from Germany, where they can be bought to much better advantage, both as to prices and freights, than anywhere else in the world. Cut nails are brought from the United States by American houses and compete successfully with that class of nails from anywhere, both in quality and price. Wrought nails and railroad spikes come principally from England.

American axes and carpenters' tools are preferred to all others, and this is the testimony of even English dealers here. In fact, these will command sale at even higher prices than similar tools from any part of the world. Shovels, spades, hoes, and picks of American manufacture are preferred at the same price and would have preference in the purchases made by wholesalers if the freights were equal. Locks, bolts, and hinges of the commoner styles come mostly from Europe. Our goods of this class of latest patterns are not much in use and are too high in price for the general trade. Iron and steel in bars and bolts, plate iron and steel, and corrugated iron come mainly from England. Prices on these are better in England, and, when it comes to shipment, I am told that much of this product is carried at the very lowest rates, serving more as ballast than as a paying freight.

While there is still much complaint of our packing in other lines, I find no complaint of it in this line, though there was in times past complaint of this also.

Table showing the importations of ironware, hardware, etc., into Peru for the years 1890 and 1891.

Articles.	Whence imported.	Quantity.
		Kilograms.
Anchors	England	1,921
Pulleys	Germany	100
	England	282
Plows	United States	21,033
	England	1,009
Pickaxes	do	249
	Italy	40
	Belgium	73
	United States	1,082
Crowbars	England	9,020
	France	2,160
Chains	England	10,025
	United States	745
Pruning knives	England	265
	United States	447
Cars for mines	do	1,874
	Germany	1,173
	England	9,186
	France	31,120
	Belgium	18,799
Strap iron	England	34,171
	France	136
	Belgium	242
Axes	do	450
	United States	1,075
	England	10
	Germany	18
Cane knives	do	672
	England	617
	United States	415
Railroad material	do	4.950
Kettles	England	8,027
Spades and shovels	Germany	2,276
	England	25,551
	France	80
	United States	1,527
Picks	England	1,456
	France	289
	United States	530
Points for plows	do	235
Harrows	England	69
	United States	2,918
Plowshares	England	7,310
	United States	560
Rivets	England	2,614
	United States	752
Rails	England	1,477,000
	United States	1,000
	Germany	1,770
Apparatus for boilers	England	129,572
	France	5,992
	United States	12,054
Iron in bars	England	76,087
	France	11,715
	United States	743
	Chile	2,477
Plates for boilers	England	29,886
	United States	96

Table showing the importations of ironware, hardware, etc., into Peru, etc.—Continued.

Articles.	Whence imported.	Quantity.
		Kilograms.
Screws for blacksmiths	Germany	40
	England	1,334
	United States	404
Anvils	England	633
	United States	339
Iron plates	England	71,129
	France	14,105
	Germany	900
Iron rings	do	1,476
	England	359
	France	778
Hinges	England	3,329
	France	57
	United States	745
Pumps for wells	Germany	326
	United States	486
Money boxes or safes	Germany	2,287
	United States	470
	France	295
Cooking stoves	United States	3,300
Hooks	Germany	75
	United States	475
	England	67
Horseshoes	do	1,880
	France	1,980
Pots	United States	35
	England	16,430
	Germany	163
	France	1,726
	China	379
	United States	597
Domestic boilers	Germany	127
	England	402
	Chile	608
Hook bolts	England	16,800
	France	607
	United States	135
Door bolts	England	1,731
	Germany	225
	United States	124
Wheels for carts	do	13,771
Tacks	France	1,736
	Germany	115
	United States	344
Wire for screens	England	745
	France	647
	United States	690
Screws	England	1,757
	France	152
	China	178
	United States	134
	Germany	208
Nuts	England	6,232
	United States	28
		Dozens.
Locks	Germany	126
	England	587
	France	298
	United States	200

HEMP, FLAX, AND JUTE.

The following are the importations of rope—manilla, sisal, and hemp—for the years 1890 and 1891:

	Kilograms.
Germany	12,870
England	14,806
United States	34,756
Chile	1,291

Manilla rope had been selling up to a short time ago, when silver was 32*d.*, at 22 to 24 cents silver per pound. It is now selling at 25 cents for large sizes and 30 cents for small; hemp and tarred rope, at 23 to 25 cents; and sisal, at 20 to 22 cents in silver per pound.

Bagging, jute and cotton, pays a duty of 4.72 soles on 217 pounds. The English are looking closely after this trade, and have an agent traveling up and down the coast pretty much all the time. The following are the importations of all kinds of bagging for the years mentioned above:

	Kilograms.
England	78,360
Chile	59,533
Germany	11,902
United States	10,580

LEATHER AND RUBBER GOODS.

These articles come from the following countries:

Articles.	Whence imported.	Quantity.
		Kilograms.
Leather, cow and hog and imitation	England	958
	France	8,552
	Belgium	455
	Germany	1,361
Belting leather	England	1,176
	United States	910
		Number.
Saddles	Belgium	1
	United States	35
	Germany	1
Ponchos	do	300
	England	18
	France	48
Handbags	Germany	76
	England	4
	United States	72
		Cu. meters.
Rubber goods	Germany	191
	England	708
	France	511

For some time past the retail price of leather has been advancing, owing to the continuous decline of silver. At present English calfskin is sold in small quantities to the shops of Callao and Lima, where shoes are made to order, at 5.20 soles per kilogram. This is equal to about $3.20 in gold per kilogram. It has ranged from 4.50 to 5.20 soles. No American leather is offered here.

Boots and shoes come from France mostly when imported. The duties are 1.80, 4.05, and 13.50 soles and so on up to 16.20 soles per dozen on children's and men's and women's shoes, and on boots the duties range through several classes from 10.80 to 43.20 soles per dozen. Duties are all by the dozen pairs. The protection thus given has resulted in the establishing of a very large number of shops or small factories, the best of which are in the hands of foreigners, but a goodly number of native workmen are found in them. The duties on leather are 48, 64, and 1.20 soles per kilogram.

The French styles of shoes, as also the French styles in dress, are preferred. The protection to leather has stimulated the tanning industry, but the leather made here is far inferior to ours or to any importations. When an imported article of leather is used, I think one can buy as good a pair of shoes or boots in Callao or Lima as can be bought anywhere and at prices quite as low as prevail in the United States. This is owing in great part to the very low wages paid to workmen. I forwarded some time ago a lot of shoes purchased here to a Milwaukee firm for comparison with the American product, and the best of these will compare favorably, I think, in make and price with ours. Boots and shoes made from native leather look well, but—through imperfect tanning, it is said—they do not wear well. Notwithstanding the fact that a superior article of shoe can be imported at about the same price as the Peruvian shoe commands, the importations are comparatively small.

Saddles and harness of American make are already sold here and have been for many years. Not long ago a traveling man from Philadelphia made what he regarded as a very satisfactory sale of leather goods.

Leather belting comes generally from England and the United States. The following are the prices per pound ruling at the present time:

Description.	American.	English.
	Cents.	*Cents.*
1½ inches	15	25
2 inches	30	25
2½ inches	35	30
3 inches	40	40
4 inches	45	55
4½ inches	55	58
5 inches	70	60

WINES AND LIQUORS.

The following are the importations into Peru of all classes for the years 1890 and 1891, taken from the official records:

Articles.	Whence imported.	Quantity.
Brandies and whiskies of all kinds:		*Dozens.*
In bottles (quarts)	Germany	457
	England	461
	France	3,600
	Italy	45
	Spain	820
		Liters.
In barrels	Germany	261
	France	2,187
	Spain	1,294
	England	74
	China	110
Bitters:		
In barrels	Germany	260
	France	1,350
	Italy	50
		Dozens.
In bottles	Germany	139
	England	22
	France	669
	Italy	377
	Spain	100
Beer in bottles (quarts)	Germany	22,732
	England	2,287
	France	275
	Belgium	590
	Chile	662
	United States	100

The duty on brandies and whiskies of all kinds in common bottles is 5.20 soles per dozen, with the municipal and other charges, which amount to 36 cents in silver per dozen more, making in all about 5.56 soles per dozen. The duty on brandies and whiskies of all kinds in barrels is 39 cents in silver per liter, with municipal charges, which are small, but not ascertained.

The duty on bitters in barrels is 26 cents in silver per liter, with municipal tax added. On bitters in bottles the duty is 3.25 soles per dozen bottles, with municipal tax same as brandy.

The duty on beer in bottles is 1.80 soles in silver per dozen, with municipal and local tax of 36 cents in silver per dozen added.

A quart bottle of English beer sells at retail at from 70 to 80 cents in silver. When all import charges, including duties, are paid, the cost of importation will reach the sum of 18 cents per bottle.

There are large breweries in Callao and Lima which get their barley or barley malt chiefly from Chile. There were imported from Chile during the year 1891 about 300,000 kilograms, on which the duty is 5 cents in silver per bushel. The beer made here is of very fair quality and is almost wholly used by the common classes. The largest breweries are now under the management of the English. A bottle of Peruvian beer holding 1 pint retails for 20 cents, while a quart bottle sells for 30 cents. This beer is delivered from the breweries at 2.40 soles per dozen in quart bottles and 2.50 soles for 2 dozen pint bottles.

English beer sells at 24 soles per case of 4 dozen quart bottles, or 6 soles per dozen. A case containing 7 dozen pint bottles sells for the same, 24 soles.

I am advised that there is a growing demand for American whiskies, but there are few retailers as yet who keep it. The best brands only are in demand. Pisco, italia, and muscatel made from grapes grown in Peru are favorite liquors with the common classes, and are very cheap in comparison with imported alcoholic liquors. Chicha made from corn by a primitive brewing process and rum from the sugar cane are much used by the poorest classes for drinking, and are the cheapest liquors purchasable. Retailers will sell a small glass or "copita" of rum for 2 cents, and I think most of the inebriety is among the users of rum.

PERUVIAN PETROLEUM.

Illuminating oils of the best quality come from the United States. The best quality of American kerosene is selling now at 6 soles per case of two 5-gallon cans each, or 10 gallons to the case. It was thought when the London Pacific Company began the refining of their oils at Talara, about 40 miles north of Paita, that their product would at once supplant the American, not only in the markets of Peru, but along the whole western coast. This certainly would have taken place if the effort at refining the Talara product had been as successful as was hoped for. In 1890 and early in 1891 large consignments of the Talara oil were sent to Callao and to other points on this coast and sold in large lots at 3.50 and 4 soles per case of 10 gallons, being put up in 5-gallon tins after the style of the American product. At this time the American oil sold in Callao at from 6.50 to 7 soles per case.

The first output of Talara was not as satisfactory as looked for, being found by some consumers explosive at a heat that did not affect the American oil, besides giving off a smoke and a very offensive smell. I have tested at my own rooms, both in lamps and coal-oil stoves, the best qualities of the Talara product obtainable, and, as to the smoke and the smell, I have found it insufferable. The manufacturers of the Talara oil tell me that with chimneys of greater length than the ordinary chimney the smoke is avoided, but the testimony of those who have tried it in this way is that the smell is still strongly present. However, the cheapness of this oil as compared with the American in this market has so recommended it to the general consumer that its use is growing as the price declines, but it is admitted by all who use it that it is very inferior to the American.

The Talara oil is now selling by the case at from 2.50 to 2.80 soles, while the American sells at 6 soles per case.

In a late interview with Mr. Herbert Tweddle, jr., who is in active management of the Talara oil wells, he kindly gave me the following facts concerning the business and prosperity of the London Pacific Petroleum Company:

The company's lands comprise an area of 1,000 square miles. The oil region extends a distance of 200 miles north from Talara and inland a distance of 16 miles. They have a well in operation now that is 16 miles from the coast. This region has been known as an oil region ever since the days of the Incas, and the excavations or pits in which the Incas stored the product, which was found so near the surface as to be secured simply by digging with the rude instruments of the time, are still seen for a distance of 16 miles from the coast. The first well bored under the direction of Mr. Tweddle, who was at one time connected with the Standard Oil Company, of the United States, yielded at the depth of 300 feet a flow of 180 barrels of petroleum per day. It was two years before he was able to get any of this product to market. Up to the present time they have drilled twenty-six wells, finding oil in every case. Product is now being taken from fifteen wells, and the output can be increased at any moment. They handle now about 100 tons of crude oil per day, and the possible output is given at 100 barrels per day for each well. The depth at which oil is found is not over 500 feet, while the depth in the United States, Mr. Tweddle says, is from 2,000 to 3,000 feet. It takes an average of two weeks to bore a well at Talara, and it is in contemplation by this company to invite American experts to do the boring hereafter, the company buying the product from those who put down the wells. The distilled product is sold along the coast, while the crude article finds large sale at Callao for use by gas companies, stationary engines, and the railroads, which employ the product as a substitute for coal and find it from 40 to 50 per cent cheaper. The railroad from Mollendo to Lake Titicaca used petroleum for a time, and would have continued its use in place of coal had it been possible for the Talara people to furnish regularly the amount required. This statement is fully confirmed by the report of the railroad company referred to, which report I have read. The Talara people have but one small steamer with a capacity of but 500 tons, and the distance from Talara to Mollendo is so great that they find it impossible, with such inadequate facilities, to supply both railroads until these facilities are increased. They are at present endeavoring to make arrangements for better shipping facilities.

Last year the company sold at Callao 20,000 cases of 10 gallons each of their refined product for illuminating purposes, and they expect to sell this year 30,000 cases. Their entire shipment of illuminating oil last year amounted to 67,000 cases. Mr. Tweddle tells me that their product is lacking in paraffin, and, being uncongealable at low temperature, is better adapted to lubricating than to illuminating uses.

He very frankly admits that they will make an effort to have even still higher duties placed on the American product while still further decreasing the price of their own to the consumers on this coast. The company proposes to put their oil on the market at Callao soon at 1.80 soles per case, which at present exchange is about $1.06 in gold per case, or less than 11 cents in gold per gallon. This oil can now be bought at from 2.50 to 2.80 soles per case in Callao, while the American oil sells at 6 soles per case.

The American product pays a duty of 2.73 soles per case, or 6 cents in silver per liter. Add to this duty the freight from New York, which is usually about 20 cents per case, and 10 cents a case for handling from the ship, and we find the total duties and expenses on the American oil laid down in Callao to be about 3 soles per case of 10 gallons. It costs, Mr. Tweddle says, delivered at the ship in New York, about $1 in gold per case, or 1.70 soles in silver, which, added to the duties and expenses, makes the total cost of the American product laid down at Callao about 4.70 soles per case.

The charges paid by this company to the Peruvian Government are but a trifle. They have their own sawmill at Talara, where they saw their lumber into proper lengths for boxes, and shops where they manufacture their own tins. The tin comes from England and the lumber either from the United States or Central America, and they find the manufacture of both very expensive. They say that at present they realize little or no profit on the manufacture of the illuminating oil, and hence are giving just now most attention to supplying the demand for the crude product.

The failure lately of the companies that have been boring for oil near Tumbez is attributed by Mr. Tweddle to the fact that they are too near the volcanic rock in that latitude.

In spite of the strong competition, American oil continues to arrive, and it is estimated that thus far in 1892 about 12,000 cases from New York have been received. It is very evident, however, that the American is losing ground, owing to the heavy duties imposed already, and, should they be advanced, the Talara oil will have command of the market.

MUSICAL INSTRUMENTS.

The trade in this line of imports is practically all with Germany, England, Belgium, France, and Italy.

In a list of importations embracing twenty-four different kinds of instruments those from the United States consist of only five music boxes, one melodeon, twenty-eight organs, and two pianos. I may say that the importations of this character are very limited, and that the United States lead in the sale of organs. Germany has imported a great number of pianos, and they undersell the American product in the same way that the German sewing machines undersell the American. The American piano is regarded as a superior instrument, I am told, but the freights and credits cut an important figure here again, and to our disadvantage.

The duties are very high on this class of goods, ranging as follows: On accordeons, 2.40 to 9.60 soles per dozen; on violin bows, 2 soles per dozen; bass drums, 4 soles each; music boxes, 1.60 to 141 soles per dozen; the finer class of these pay a duty of 20 soles each; clarinets, 2 to 3.20 soles each; zithers, 4 soles each; flutes, 40 cents to 3.20 soles each; guitars and mandolins, 1.20 soles each; organs, 4 to 40 soles each; pianos, 90 to 135 soles each; trombones, 4 soles each; violins, 7.20 per dozen to 8 soles each; violincellos, 4 soles each.

MACHINERY AND IMPLEMENTS.

The following are the importations during the years 1890 and 1891 of all kinds of machinery, except that for sugar plantations, all of which practically comes from the United States:

Table showing the imports of all kinds of machinery in 1890 and 1891.

Articles.	Whence imported.	Quantity.
		Kilograms.
Machines for agricultural purposes	Germany	21,363
	England	146,068
	France	13,605
	United States	151,894
Machines for the arts	Germany	1,281
	England	6,478
	France	574
	Italy	225
	Belgium	500
	United States	713
Machines for mincing meat	Germany	64
	United States	51
Scales:		
Platform	England	1,552
	France	643
	United States	4,738
		Dozens.
Various kinds	Germany	75
	France	63
	Belgium	25
	England	221
	United States	549
		Number.
Sewing machines	Germany	221
	England	16
	France	15
	United States	355
Washing machines	do	355
Photographic cameras	do	10
	All other countries	8
Ice-cream freezers and churns	Germany	261
	France	780
	United States	562
Electrical apparatus	England	220
	France	2
	Belgium	6
	United States	14

All machines for agricultural purposes are free of duty. Machines for the arts pay but 1 cent duty per kilogram. The duty on machines for mincing meat is 12 cents per kilogram. Sewing machines are free. On washing machines the duty is 2 cents per kilogram. Photographic cameras pay a duty of 40 per cent ad valorem. The duty on ice-cream freezers and churns is 10 cents per kilogram. On electrical apparatus the duty is 40 per cent ad valorem. The duty on platform scales is 1.20 soles per kilogram; on scales of various kinds the duties range from 1.60 soles per dozen to 6.40 soles each.

The reports of 1892 will show a much larger trade in electrical supplies from the United States.

At the close of this report will be found a list of many articles showing imports from various countries, among which may be found machinery not enumerated here.

American harrows and cornshellers are also sold in Peru, and in these articles we command the trade. Agriculture is very backward in this country, but there are vast areas of arable lands awaiting the hand of labor, and sooner or later these will come into cultivation. The labor for this work, to all appearances, must come from other countries, and just now the Peruvian Congress is discussing a new plan of colonization. It is agreed by all that immigration is absolutely necessary to get these lands into successful cultivation, but the efforts for many years have proved practically abortive. The Peruvian Corporation (limited), now in charge of the railroads of the country, appreciate the necessity, and they are now bringing from Europe a noted surveyor and organizer with the object of perfecting a scheme of colonization. There is wide divergence of opinion, as shown by the debates in Congress, as to the best method for encouraging immigration, and the prospect is that the whole matter will be referred back to the several departments, leaving to each to formulate suggestions for the consideration of the next Congress.

American sewing machines are more largely sold than any other, and, although a German imitation of our goods in this line made large inroads in the last few years upon the sales of the American product, I am assured by the most reliable dealers here that the superiority of the American is generally admitted, and the sales begin to show a rapid return to the old-time commanding position, outstripping all competitors.

Packing of American machinery must be improved upon as an auxiliary to the increase of trade. The breakages from our country entail greater losses than those from any other country. Sugar machinery from the United States is dearer than that from other countries; but its superiority is admitted, and it would exclude all other, it is believed, if the freights were equal to European freights, even at higher prices.

PAINTS AND PAINTERS' SUPPLIES.

Painters' pencils come in but small quantities, and from European countries.

The best varnishes come from the United States, so I am informed by a house that does perhaps as large a business as any other in this line.

Varnishes sell here at the following prices: Demas varnish (white) in 1-gallon tins, 4 to 4.50 soles per tin; black Japan in 1-gallon tins, 3.50 to 4 soles per tin; copal No. 1 in 1-gallon tins, 3.50 to 4 soles per tin; finest varnishes, best wearing body, 12 to 14 soles per gallon; finest hard-drying body varnish, 10 to 12 soles per gallon; locomotive fine finish, 8 to 10 soles per gallon; locomotive rubbing varnish, 7 to 9 soles per gallon; coach rubbing outside, 10 to 12 soles per gallon.

The following are the importations for 1890 and 1891:

Articles.	Whence imported.	Quantity.
		Kilograms.
Paints of all classes, except those prepared with oil	Germany	25,946
	England	6,963
	France	2,712
	Italy	4,247
	Belgium	413
	United States	1,832
Ordinary paints prepared with oil	Germany	6,389
	England	25,300
	United States	933
Varnishes	Germany	281
	England	387
	France	318
	Belgium	630
	Italy	88
	United States	530
Oil for sewing machines	England	24
	France	42
	Germany	45
	United States	2,837
Colza, cocoa, and palm oils	Germany	19,046
	England	415
	France	1,016
	Italy	4,460
	United States	27,280
Black oils and others for machinery	England	2,440
	United States	49,118
Linseed oil	England	17,125
	United States	1,181
Sperm, lard, and peanut oil	England	200
	Italy	1,572
	China	14,125
	United States	11,003
Gasoline, paraffin, and kerosene oils	do	57,614
	England	150

The duties on varnish are: On ordinary in barrels for ships, 1 cent per kilogram; on copal for furniture, 20 cents per kilogram in tins; black for iron in tins, 10 cents per kilogram; for photographers' use in tins, 60 cents per kilogram.

Duties on paints are as follows: Black No. 1, 12 soles per quintal; blue, red, brown, green, and yellow, 12 soles per quintal; copper paint in gallon drums, 10 soles per quintal; dry oxide of iron in 25-pound drums, 10 soles per quintal; liquid oxide of iron, 2.50 soles per quintal; metallic paint, 4 soles per gallon; yellow ocher in powder, 6 soles per quintal; yellow ocher in oil, 12 soles per quintal; red lead No. 1, 14 soles per quintal; red lead No. 2, 12 soles per quintal; red lead No. 3, 10 soles per quintal; all fine paints in 1-pound tins, 1 to 1.20 soles per tin; English white lead—No. 1, 12 soles per quintal; No. 2, 10 soles per quintal; American white lead—No. 1, 14 soles per quintal; No. 2, 12 soles per quintal; all paints in powder, 6 cents per kilogram; yellow, 16 cents per kilogram; Berlin blue, 60 cents per kilogram; copper for ships, free; mineral blue and burnt ocher, 3.2 cents per kilogram; finest blue, 6 cents per kilogram; ordinary vermilion, 16 cents per kilogram; ordinary paints prepared with oil, 1.4 cents per kilogram.

GLASS AND GLASSWARE.

The following are the importations in this line of goods:

Articles.	Whence imported.	Quantity.
		Cu. dec.
Table and other kinds of manufactured glass	Germany	20,982
	England	10,386
	United States	67,745
	France	18,381
	Belgium	26,803
Lamps (glass), with fixtures	United States	1,144
	Germany	1,582
Lamp chimneys	do	18,078
	England	1,877
	Belgium	13,094
	United States	22,597
Globes for lamps	Germany	3,086
	England	2,851
	Belgium	391
	United States	7,541
		Kilograms.
Window glass	Germany	19,488
	France	4,863
	Belgium	29,865
	United States	127
	England	17
Lamps	Germany	15,983
	England	1,695
	France	854
	Belgium	890
	United States	8,740
		Dozens.
Candle-snuffers	do	106

The merchants tell me that glassware generally can be purchased at lower prices in Germany and Belgium, and the figures seem to confirm the statement. A personal examination of the stocks on exhibition convinces me that the lamps brought here from other countries are very inferior to the American lamp, and that our latest patterns would outsell foreign goods in this line.

What has been said on the subject of credits and freights is particularly applicable to goods in this line.

The market for plate glass is very limited. There is very little building going on, and business is so thoroughly paralyzed that there are very few improvements in store fronts.

The drug stores being wholly in the hands of proprietors who have satisfactory arrangements with houses of their own nationality, druggists' supplies generally come from Europe. The United States have a part of the trade, however, in this line from the Peruvian druggists, though as yet it is very small.

I am satisfied that when shipping facilities with the United States are in better shape as to rapid and regular communication and freights the American trade in glassware of all kinds will be among the first to feel the beneficent results.

PAPER AND STATIONERY.

The dealers in this class of goods tell me that, as a rule, they can buy to better advantage in the German, English, or Belgian markets. To the question whether or not, if freights were the same, they could buy to as good advantage in the United States, they answer that in some lines they could, while in other lines, more especially in the cheapest class of manufactures, the advantage would still be with the Europeans.

If trade conditions were more favorable in the direction of ocean freights, it is the opinion that printing paper, wall papers, pasteboard, press-coyping books, and such articles would be purchased more largely in the United States, for the superior character of the American product would fully make up for any difference that might remain. I was shown a press-copy book bought in Germany which retails here at 1.50 soles and an American which sells for 2 soles, and the superior character of the latter was so apparent that a small reduction by the wholesaler at home would enable dealers here to so reduce the retail price that the American would outsell all others even at the remaining difference. In paper and binding the American is far superior to the German.

Envelopes were more largely bought in the United States during the last year than before, and dealers are getting out small orders of various kinds of goods in this line for purposes of comparison and to try the market.

American inks have been greatly neglected, but these are being tried, and may gain a foothold.

Wall paper comes mostly from England and Germany, and of the finest qualities very little is sold. Lima takes a moderate amount of a good quality of paper. I have looked over stocks and find that the great bulk of sales is of paper that retails here at from 15 to 25 cents per bolt. This quality of paper sells in the United States at from 8 to 15 cents per bolt.

Table showing the importations of paper and stationery from all countries.

Articles.	Whence imported.	Quantity.
Paper:		*Kilograms.*
Of all classes, except for newspapers	Germany	78,154
	England	17,465
	France	28,207
	Italy	16,680
	Belgium	20,439
	Spain	2,838
	China	6,709
	United States	7,683
	Chile	1,964
For newspapers	Germany	29,065
	England	19,482
	France	4,494
	Belgium	233
	United States	4,244
Sealing wax	Germany	188
	England	15
	France	564
	United States	2
Cardboard	Germany	1,555
	England	1,897
	France	1,367
	Belgium	1,648
	United States	20
Blank and copy books	Germany	4,787
	England	598
	France	906
	Italy	683
	Spain	3,800
	United States	579
Press-copying books	Germany	1,116
	England	1,995
	France	2,976
	Belgium	2,865
	United States	530
Envelopes of all kinds	Germany	1,259
	England	1,062
	France	695
	Italy	336
	Belgium	2,849
	United States	342
Inks, printing and writing	England	733
	Germany	1,058
	France	145
	United States	38
Blank books	Germany	1,793
	England	535
	France	577
	China	178
	United States	46
Copy books for schools	Germany	20
	France	300
	Belgium	1,248
		Hundreds.
Visiting cards	Germany	692
	England	265
	France	529
	United States	400

JEWELRY AND JEWELERS' WARE.

The following are the importations in this line of goods:

Articles.	Whence imported.	Quantity.
		Number.
Watches	Germany	425
	England	130
	France	663
	United States	418
Clocks	Germany	445
	France	353
	United States	6
		Cu. dec.
Toys for children	Germany	31,005
	England	11,192
	France	15,432
	Belgium	8,147
	Spain	684
	United States	527
Jewelry:		*Soles.*
Plated	Germany	1,150
	England	8,669
	France	6,150
Fine	Germany	2,937
	France	800

Reliable business men in Lima tell me that, although American watches and clocks sell in Peru and are liked, they know from experience that this class of goods can be imported from Germany to much better advantage.

American plated ware, especially that from the Meriden Britannia Company, is regarded as the best that comes to the country; but the demand for such goods is very light, owing to the impoverished condition of the people and the general stagnation of trade and the industries. In the more prosperous days of the country there was a good demand for them. The Peruvian people prefer good goods and are liberal buyers in ordinarily prosperous times.

The jewelry establishments display fine stocks of all classes of jewelry, from the cheapest to the costliest, but they all complain of limited sales. The importations of jewelry given above are in the custom-house valuation, which is very likely far below the actual; but slow trade explains the light importations. Stocks already on hand are too large to admit of much increase, if any at all.

I could not procure the importations of plated ware, but they are not large. Reference will be made to them in the table appended.

WEARING APPAREL.

It will be seen from the table of imports attached that there are very few importations of ready-made clothing. The duties on clothing are fixed at high figures, it is said, to protect the Peruvian tailors and seamstresses, and the tariff has achieved this desirable end. Clothing is ranged in twenty-one classes, valued at from 3 soles a suit for children's suits up to 150 soles for men's and ladies' wear. The duty on all classes is 45 per cent. The importations of ready-made suits for the years 1890 and 1891 did not exceed, according to the official reports, 450.

The importations of drawers and shirts were very much larger, reaching a total of about 20,000 dozens. Drawers are ranged in fifteen classes, six of which take valuations from 4 to 24 soles per dozen, upon which the duties are 45 per cent, while the other nine are valued at from 1.50 to 7 soles per kilogram and pay duty of 45 per cent. Shirts are ranged in twenty-three classes, valued at from 4 to 80 soles per dozen, and pay 45 per cent.

The duties on ladies' hats range from 1.35 to 3.70 soles each, according to style and trimming. Untrimmed hats pay 45 per cent on a valuation running from 3 to 48 soles per dozen. The importations reached only about 4,000 dozens, except silk hats, which are not given. A gentleman's silk hat sells at retail at from 8 to 20 soles, according to quality. When this is reduced to gold, there seems to be very little difference between the selling price of a silk hat here and in the United States. This class of goods comes almost entirely from England and France.

Hosiery comes from England, Germany, and France. The importations were principally of cotton, and for 1890 and 1891 were as follows:

	Kilograms.
Germany	10,826
England	3,166
France	1,776

The duties range from 1.20 to 1.80 soles per kilogram.

A much better quality of sock of any kind, cotton or wool, can be bought in the United States for the same money.

A very fair suit of clothes, such as is worn by the best class of business men, costs here from 50 to 85 soles, or from $30 to $50 in gold. An ordinary suit, such as costs in the United States from $20 to $25 in gold, will cost here a trifle less, owing to the fact that workmen are not as well paid here in that class of work as in the United States; but the American suit at that price and made to order, as here, will be, as a rule, better made, better lined, and will fit better. The most ordinary kind of clothing here is as cheap as ready-made clothing in the United States and of material equally as good.

RECAPITULATION.

The following table is appended for the purpose of indicating from the official records the extent of trade in the several articles named, as well as the countries that now have the preference in the several lines.

Table showing the imports into Peru.

Articles.	Whence imported.	Quantity.
		Kilograms.
Steel in bars or plates	Germany	31,405
	England	36,488
	United States	5,337
Wood adornments, plated, for doors or coffins	France	322
	United States	738
Florida water	Germany	26,674
	England	1,367
	France	912
	Belgium	3,862
	United States	38,583
Turpentine	Germany	2,000
	England	100
	United States	40,400
Iron wire	England	952
	France	570
	United States	2,835
	Germany	530
Tar	England	1,272
	Italy	200
	United States	8,624
Articles of ivory, pearl, tortoise shell, bone, and wood.	Germany	17,398
	England	7,352
	France	2,063
	United States	3,150
Signs and calendars	Germany	1,224
	England	2,459
	France	4,090
	Italy	663
	Spain	1,031
	United States	3,935
Quicksilver	England	4,920
	United States	2,050
Blacking	Germany	2,286
	England	159
	France	2,058
	United States	1,464
Piping for plumbing	England	21,131
	France	2,180
Cartridges for firearms	Germany	705
	England	12
	France	461
	Belgium	227
	United States	3,044
Wax	Germany	15,570
	England	1,430
	United States	4,448
Tin	England	2,706
	Belgium	360
Nails (wire, iron, and zinc)	Germany	9,553
	England	12,976
	France	9,406
	Belgium	27,184
	United States	3,608
Matches	Germany	58,191
	Italy	18,186
	Belgium	486
Machine grease	England	1,080
	United States	10.186

Table showing the imports into Peru—Continued.

Articles.	Whence imported.	Quantity.
		Kilograms.
Files	Germany	340
	England	4,573
	France	86
	United States	138
Blacksmiths' hammers	England	144
	United States	85
	France	42
Tools not denominated	England	15,686
	France	1,478
	Germany	448
	United States	978
Tin manufactures	Germany	2,534
	England	46,329
	France	2,070
Printing presses	United States	1,170
Soap:		
All classes	Germany	43,060
	England	4,260
	France	6,699
	Italy	36,567
	Chile	11,467
Fancy	Germany	1,337
	England	1,977
	France	903
	Italy	856
	Belgium	806
	United States	143
Staves for barrels	do	54,947
Hose for fire engines	Germany	12
	England	535
	United States	237
Moldings of wood or tin for buildings	Germany	5,905
	France	3,951
	Belgium	1,233
	United States	1,503
Block and tackle	do	253
Perfumery	Germany	2,753
	England	3,097
	France	11,986
	Belgium	4,429
	United States	2,171
Pitch and resin	Germany	7,653
	England	1,640
	United States	36,290
Copying presses	England	1,281
	France	573
	Belgium	279
	Spain	295
	United States	116
Seals	Germany	183
	United States	290
Presses (lithographic, cotton, and agricultural)	do	6,143
Retorts, chemical	do	5,880
Tallow	Germany	4,080
	England	7,492
	United States	1,363
	Uruguay	6,898
	Colombia	5,833
	Chile	1,604

Table showing the imports into Peru—Continued.

Articles.	Whence imported.	Quantity.
		Kilograms.
Tobacco (chewing) and snuff	Germany	337
	France	298
	Spain	7,729
	China	4,344
	United States	1,410
	Cuba	1,526
Boards, sawed, for boxes	United States	417,676
	England	14,800
	Germany	5,148
	Chile	2,952
Dyes	Germany	2,106
	England	1,433
	France	388
	Belgium	251
	United States	1,764
	Central America	1,487
Candles of all classes	Germany	54,378
	England	7,568
	France	3,313
	Belgium	59,940
Glass for photographers	Germany	19,488
	France	4,863
	Belgium	29,865
	United States	127
Bedsteads, small	Germany	3,931
	England	36,592
	France	708
	Italy	269
		Dozens.
Cologne	Germany	1,703
	France	4,198
	Belgium	202
	United States	4,760
Spectacles	France	300
	Germany	162
	United States	33
Scales:		
Steelyards	England	20
	United States	44
Shop	do	40
	England	18
Padlocks	Germany	212
	England	539
	France	108
	United States	144
Knives, pocket	Germany	730
	England	196
	France	52
	United States	8
Saws	Germany	29
	England	23
	United States	31
	France	33
Scissors	Germany	294
	England	59
	France	341
	United States	234
Cloaks	Germany	30
	England	95
	France	150

Table showing the imports into Peru—Continued.

Articles.	Whence imported.	Quantity.
		Dozens.
Drawers and shirts	Germany	3,689
	England	7,221
	France	3,846
	Italy	1,594
	Spain	440
	Belgium	651
	United States	786
Shirts	Germany	724
	England	48
	France	353
	Belgium	45
Gloves, all kinds, except silk and kid	Germany	58
	England	204
	France	239
	Belgium	43
Hats, all classes, except silk (not given)	Germany	883
	England	2,079
	France	1,122
	Italy	688
	Belgium	246
	United States	58
		Gross.
Needles, machine	Germany	251
	England	7
	France	45
	United States	273
Buttons, paste and pearl	Germany	8,700
	England	2,872
	France	14,830
	Italy	418
	United States	96
		Number.
Trunks	Germany	778
	England	20
	France	383
	United States	166
	Chile	127
Revolvers (firearms)	Germany	94
	England	30
	France	62
	United States	149
		Cu. dec.
Crockery	England	220,807
	Germany	47,293
	France	18,967
	United States	95,939
Porcelain of all classes	Germany	9,681
	England	2,145
	France	4,871
	Belgium	3,875
	United States	482
Dolls	Germany	15,940
	England	186
	France	3,370
	Belgium	926
		Sq. meters.
Mattresses	England	138
	United States	20

Table showing the imports into Peru—Continued.

Articles.	Whence imported.	Quantity.
		Suits.
Ready-made clothing	Germany	114
	England	65
	France	64
	United States	147
Cottons:		*Kilograms.*
Cotton batting	Germany	137
	England	4
	France	56
Cotton linings	Germany	2,172
	England	10,399
	Belgium	730
	France	525
Cotton ribbons	Germany	410
	England	72
	France	33
Bedticking	Germany	391
	England	4,517
	France	1,601
Linings (special)	England	2,461
	France	80
Damask	Germany	585
	England	50,684
	France	302
Laces	Germany	3,213
	England	1,204
	France	695
	Belgium	244
Flannel	Germany	1,008
	England	4,986
	France	444
	Italy	230
Blankets	Germany	680
	England	1,033
	France	1,290
	Belgium	3,064
	Spain	1,009
	Italy	117
White cotton goods	Germany	9,073
	England	159,589
	France	7,070
	Italy	560
	Belgium	681
	United States	1,632
Other kinds of cotton goods	Germany	10,693
	England	74,449
	France	5,442
	Italy	2,001
	Belgium	901
	Spain	192
	United States	881
Yarns	England	792
	United States	1,368
Lawns	Germany	412
	England	2,588
	France	408
Sailcloth	Germany	944
	England	9,913
	France	1,183
	United States	2,228

Table showing the imports into Peru—Continued.

Articles.	Whence imported.	Quantity.
Cottons—Continued.		*Kilograms.*
Tablecloth and napkins	Germany	299
	England	303
	France	272
Socks	Germany	20,826
	England	3,166
	France	1,776
	Spain	37
Cotton sackcloth	Germany	1,682
	England	29,905
Handkerchiefs	Germany	3,932
	England	15,300
	France	1,490
	United States	208
Trimmings	Germany	1,049
	England	268
	France	84
Silesian linen	Germany	622
	England	12,764
	France	2,444
	United States	407
Sateen	Germany	2,274
	England	5,682
	France	2,530
Bedquilts	Germany	3,872
	England	1,104
	France	229
Sheeting	Germany	4,810
	England	168,703
	France	9,270
	United States	3,144
Towels	Germany	126
	England	2,625
	France	860
	United States	185
Chintz and prints	Germany	9,807
	England	125,554
	France	6,322
	United States	1,895
		Meters.
Shoe ribbons	Germany	15,080
	England	47,470
	France	10,254
		Dozens.
Shawls	Germany	820
	England	94
	United States	18
Wools:		*Kilograms.*
Carpets	Germany	298
	England	240
	France	267
	United States	60
Baizes	Germany	290
	England	49,045
	France	672
Flannels	Italy	181
	Germany	1,426
Blankets	do	1,526
	England	1,227
	France	896

Table showing the imports into Peru—Continued.

Articles.	Whence imported.	Quantity.
Wools—Continued.		*Kilograms.*
Cloth	Germany	14,134
	England	26,857
	France	13,950
	Belgium	226
	United States	1,296
Embroidering thread	Germany	2,463
	England	124
Satinet	do	3,918
	France	2,657
	Germany	286
Shag of all kinds	do	996
	England	17,762
	France	1,015
	Italy	393
	United States	128
		Meters.
Cassimeres	Germany	19,932
	England	48,700
	France	19,048
	Italy	1,130
	Belgium	1,175
	Spain	1,396
	United States	1,119
		Dozens.
Shawls	Germany	521
	England	99
Linens:		*Kilograms.*
Linen for sheets	Germany	498
	England	447
	France	335
	Belgium	61
	Italy	50
Bedticking	Germany	3,650
	England	535
	France	1,208
	Belgium	2,884
Packing or wrapping cloth	Germany	122
	England	51,790
	France	4,983
Drillings	Germany	1,001
	England	51,790
	France	1,161
	Belgium	444
Thread in balls or hanks	Germany	2,640
	England	7,112
	France	3,263
	Italy	3,993
Mattresses of hemp	England	2,676
	France	127
		Dozens.
Handkerchiefs	Germany	35
	England	647
	France	519
	Italy	13
Silks:		*Kilograms.*
Velvet ribbons	Germany	280
	England	19
	France	39

Table showing the imports into Peru—Continued.

Articles.	Whence imported.	Quantity.
Silks—Continued.		*Kilograms.*
Elastic cloth for boots and shoes	France	81
	Italy	158
	England	22
Grosgrain silks	Germany	217
	England	32
	France	786
	China	209
Mantas	England	35
	France	29
	China	276
Handkerchiefs	Germany	9
	France	75
	China	231
Lace	Germany	74
	France	172
	United States	67
Other silks	Germany	188
	England	63
	France	160
Velvets and plush	Germany	2
	England	176
	United States	29
		Meters.
Tulle, crape, and satin	Germany	32,499
	England	5,390
	France	11,328
	United States	150

Brushes come from France, Italy, and Belgium almost altogether.

Spoons come from England, France, and Germany generally, though the importations of these from the United States are increasing. The same remark is also true of knives for table use.

Artificial teeth come mostly from the United States.

Shoe pegs come from the United States.

Flower pots and cases for artificial flowers come from Germany, France, and China.

Buckles come from England, France, Germany, and Belgium.

Lumber comes almost wholly from the United States—from Washington and Oregon. The official report is admittedly deficient in this item, but from the most reliable data at hand the imports from the United States are about 500,000 feet of white pine and 6,500,000 feet of redwood.

Lead in bars or sheets comes from England, France, and Germany.

Steel pens come mostly from England.

Zinc comes from England and Belgium principally.

CLOSING SUGGESTIONS.

In closing this report I want to add a few suggestions as to what, in my opinion, is the best method of increasing our trade with Peru. In a report which I forwarded to the Agricultural Department a short time ago I offered the following suggestion:

> In the absence of a treaty of reciprocity, offering conditions that would attract the trade of Peru to the United States, it is, in my opinion, imperative that other measures of a more active character than anything I have seen exhibited by our merchants at home or here should be adopted. The trade in agricultural products is too small to warrant the effort by that branch alone; but, if freight rates were on a competing basis with those from Europe (which, by the way, I do not think can be reasonably hoped for without lines of American vessels to these countries), a combined effort on the part of manufacturers and producers could not fail to increase very largely, and in time, I firmly believe, permanently, our trade with this country.
>
> What is most needed here is the introduction of our goods of all kinds by persons interested from a standpoint of both personal and national gain. The few American houses here give to home trade all the business that can, under present conditions, be profitably thrown that way without special effort, in the cost of which home interests should join. With freights and credits against them, they can not afford to load themselves with American goods which can not be sold at sufficient profit to repay them for the difference in cost delivered and for the additional outlay in advertising and introducing them. To put American goods generally into competition with those from other countries at the same price and urge them on the attention of customers, is to assume additional labor and risk at reduced profit until the work of introduction has been effected. The average merchant will buy goods that offer surest sale and profit.

In that report I also said:

> Not to disparage the efforts of the few Americans in business in this country who have had so much to contend against, I still think that the establishment of a distinctively American house in Peru, devoted to the introduction of such goods of all kinds as are not already represented here, would be the very best way possible to increase our trade. To effect this would require a study of the conditions by competent agents, who, after investigation, might select stocks that offer the greatest encouragement for acceptance in the market. It is impossible for me to say what goods would secure a foothold and what not, but, as I see it, we can not reasonably expect a greater demand here without special effort to make known the merits of our merchandise any more than a manufacturer or producer at home can expect an increase of his sales there without the assistance of an agent specially devoted to the work, as well as the aid of the best mediums of advertising. Resident agents, therefore, chosen for this work and adapted to it, with goods in store here to display and furnish at a moment's notice, are as necessary for us as for the English, the German, the French, and the Italian. These countries have all these auxiliaries and subsidized vessels with rates of freight to suit exigencies, and without the same aids we will simply have no increase of trade such as we might and ought to have.

I desire now to supplement these suggestions with the following:

It is evident that most of the American dealers here are unfriendly to the project of increasing trade through the medium of the commercial traveler on various grounds more or less substantial. Some think that if home manufacturers and producers were to club together and establish a wholesale deposit in Lima, with goods at prices sufficient to cover expenses, the result would be advantageous. Others think not, believing that this would injure their own trade and be unfair to competing houses at home who would not be in the combination. To my notion there is no objection to the plan that might not be overcome to the entire satisfaction of the trade here, and the American houses can safely be left to look after their own interests. The clubbing houses will find no difficulty, in my opinion, in making such arrangements with all American houses here as will avoid injury to any interests they now represent; and when the work of introducing American goods has been completed and the lines of goods that can successfully compete are discovered, the deposit may very safely and properly give way to a division of the business thus established among the several American houses, according to such arrangements as the members of the combination may determine upon. The main thing is to have goods here on exhibition, and for sale as well, and with men who have the time and adaptability for the work of introduction. I have known merchants in New York to furnish railroad tickets—and hundreds of them—to Western merchants, thus giving them free passage from their Western homes to and from New York, in order to secure their trade. In aid of the work to be done here the merchants of the whole coast and of all the trade centers of Peru could be brought to Lima in the same way and at a cost not greater than single houses in New York have entailed upon themselves to attract the trade of our Western merchants.

A. J. DAUGHERTY,
Consul.

UNITED STATES CONSULATE,
Callao, September 1, 1892.

FERTILIZERS IN MONTSERRAT.

REPORT BY CONSULAR AGENT HANNAM.

A few years ago many tons of Peruvian guano were annually imported into this island for use in stimulating the growth of the sugar-cane plant; but with the depression in the sugar market, which set in some eight to ten years since, the use of this gradually died out, and for some years no artificial manures were imported for this purpose. Last year, however, there was a slight return to the importation of foreign fertilizers, and the imports were as follows: About 5¼ tons of sulphate of potash from the United Kingdom and 5 tons of superphosphate from Barbados. These two items were, I believe, used entirely for the cure of blight in the lime plantations. There were also imported from Barbados about 2½ tons of sulphate of ammonia and 3 tons of nitrate of soda. These were used on sugar plantations, and, I believe, with results which satisfied the users.

I believe that in the near future the use of these plant stimulants will be increased, as planters are beginning to awaken to a sense of their practical usefulness; but the trade in them will require careful nursing and judicious handling.

The points requiring most critical attention are practical demonstration of the kinds of fertilizers most suited to the soil and the cane plant, and I am of opinion that manufacturers desiring to introduce unknown and untried articles in this department must offer liberal inducements in order to persuade planters to give them a trial. The means best suited to this end should, I think, readily suggest themselves to practical men.

RICHARD HANNAM.
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Montserrat, July 25, 1892.

THE NEW PRUSSIAN INCOME TAX.

REPORT BY COMMERCIAL AGENT WASHBURN, OF MAGDEBURG.

The new Prussian income tax, which went into effect on April 1 of the present year, has now been in operation long enough to warrant a comparison with the old law. The new system introduced radical changes in assessing incomes. Formerly Government officers made up the estimates; now each person is obliged to return the amount of his income under oath. The official Reichs Anzeiger has recently published a summary comparing the years 1891–'92 and 1892–'93.

For the tax year 1892–'93 in Prussia 2,437,886 persons were assessed for 124,842,848 marks. This is an increase of 440,248 persons and 45,284,021 marks over the preceding year. To this excess, however, two thousand and twenty-eight joint-stock companies, for the first time liable to assessment, contributed 10,056,743 marks. For the purpose of comparison, then, the real increase was 438,220 persons and 35,227,278 marks.

The population increased from 29,456,458 in 1891–'92 to 29,895,224 in 1892–'93. Of the latter 6,832 are classed as exterritorial and so not liable to taxation, and 20,945,227 have incomes not exceeding 900 marks. According to the new law, all incomes of 900 marks or less are not taxed. The number of those assessed is 8.15 per cent of the total population, as against 6.78 per cent the preceding year. The distribution is as follows: Residing in cities, 1,410,073, as against 1,185,331 the preceding year; residing in the country, 1,025,785, as against 812,307 the preceding year. The amount of assessed personal income during 1891–'92 and 1892–'93 was as follows:

Year.	Cities.	Country.	Total.	Average.		
				Cities.	Country.	General.
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
1891–'92	2,884,537,195	1,389,166,022	4,273,703,217	2,433.53	1,710.15	2,139.38
1892–'93	3,873,315,496	1,851,008,271	5,724,323,767	2,746.89	1,804.47	2,350.02

If the individual Government districts be regarded, the highest average income is found in the Wiesbaden district—3,813.63 marks. The lowest averages are Gumbinnen, with 1,896.55 marks; Stade, with 1,895.55 marks; Arnsberg, with 1,669.86 marks; and Treves, with 1,774.82 marks.

The average income in Berlin amounts to 2,932.61 marks. If those assessed be grouped according as they live in the cities or country belonging to the various Government districts, the highest incomes are found in the cities of the Government districts of Cologne (3,281.55 marks), Aix la Chapelle (3,590.76 marks), and Wiesbaden (4,677.81 marks). In the country the highest figures are in the districts of Magdeburg (2,338.85 marks), and Breslau (2,422.92 marks). On the other hand, the lowest city incomes are in the districts of Frankfort (2,292.82 marks), Marienwerder (2,268.83 marks), Schleswig (2,249.63 marks), Cöslin (2,238.72 marks), Stade (2,072.75 marks), and Arnsberg (2,063.91 marks); the lowest rural income is in the district of Arnsberg (1,407.91 marks). The total income tax is thus distributed:

Year.	Cities.	Country.
	Marks.	*Marks.*
1891–'92	58,092,751	21,506,096
1892–'93	84,334,760	30,451,345

This is an increase of 45.3 per cent in the cities and 41.6 per cent in the country.

Reckoning the entire population, the amount paid per head is:

Year.	Cities.	Country.
	Marks.	*Marks.*
1891–'92	4.99	1.21
1892–'93	7.13	1.69

Paragraph 18 of the new income law authorizes all those with incomes ranging up to 3,000 marks to deduct 50 marks from their returns for each child under 14 years of age. Of the 2,118,978 belonging to this class, 154,566 are in this manner freed from all liability, and 543,308 are rated lower. Of those affected by this provision, 32.93 per cent are thus directly benefited. The loss to the State is estimated at 3,456,138 marks. Exceptions are also made in favor of agriculture. Of 2,379,094 farmers liable to taxation, 4,430 are untaxed and the rates of 48,533 are lowered. The total income which the State would otherwise derive from this source is put at 62,828,717 marks; the loss is estimated to be 543,410 marks. The percentage of the tax-paying class benefited by special provisions is 2.23 per cent—2.29 per cent in the cities and 2.13 per cent in the country.

There are 316,889 who have an income of more than 3,000 marks, as against 254,280 in the preceding year. This is 1.06 per cent of the total population (0.86 per cent in the preceding year) and 13.01 per cent of those assessed (12.73 per cent in the preceding year). The estimated income of this class was: In 1892–'93, 2,812,342,342 marks; 1891–'92, 1,887,440,517 marks. It was derived principally as follows:

From—	1891–'92.	1892–'93.
	Marks.	*Marks.*
Capital	584,448,953	911,721,202
Real estate	707,219,251	755,361,284
Commerce and industry	650,703,967	982,804,091

The following table affords an interesting comparison:

Table showing the number of persons assessed and the amount of income tax by classes.

Class.	Number assessed.		Amount of tax.	
	1891–'92.	1892–'93.	1891–'92.	1892–'93.
			Marks.	*Marks.*
900 to 3,000 marks	1,743,363	2,118,969	37,701,222	32,835,099
3,000 to 4,200 marks	116,316	126,798	11,143,890	9,126,124
4,200 to 6,000 marks	64,546	77,916	9,067,644	9,624,826
6,000 to 8,400 marks	29,547	....	5,722,596	....
6,000 to 8,500 marks	....	45,140	....	8,505,908
8,400 to 10,800 marks	14,837	....	3,958,848	....
8,500 to 10,500 marks	....	17,972	....	5,013,528
10,800 to 14,400 marks	10,448	....	3,563,280	....
10,500 to 14,500 marks	....	17,685	....	6,518,340
14,400 to 21,600 marks	8,721	....	4,254,696	....
14,500 to 21,500 marks	....	13,394	....	7,019,040
21,600 to 28,800 marks	3,498	....	2,422,548	....
21,500 to 28,500 marks	....	5,966	....	4,414,410
28,800 to 36,000 marks	2,073	....	1,895,076	....
28,500 to 36,000 marks	....	3,573	....	3,512,030
36,000 to 48,000 marks	1,524	2,934	1,775,160	4,030,720
48,000 to 60,000 marks	890	1,647	1,357,560	3,071,360
60,000 to 72,000 marks	370	973	666,000	2,278,000
72,000 to 84,000 marks	331	645	714,960	1,831,220
84,000 to 96,000 marks	254	466	640,080	1,602,300
96,000 to 120,000 marks	341	562	1,026,720	2,348,000
120,000 to 204,000 marks	318	....	1,347,840	....
120,000 to 205,000 marks	....	715	....	4,301,000
204,000 to 300,000 marks	123	....	812,160	....
205,000 to 300,000 marks	....	266	....	2,579,800
300,000 to 600,000 marks	97	164	1,105,200	2,688,200
600,000 to 900,000 marks	23	38	464,400	1,060,200
900,000 to 1,500,000 marks	8	23	280,800	1,047,200
1,500,000 to 3,000,000 marks	2	8	151,200	568,600
3,000,000 to 4,020,000 marks	1	1	111,600	133,400
4,020,000 to 4,980,000 marks	1	1	124,200	172,400
4,980,000 to 7,000,000 marks	1	2	180,000	504,400

The following table shows the relative incomes of those assessed:

Income.	1891-'92.	1892-'93.
	Per cent.	*Per cent.*
900 to 3,000 marks	87.27	86.99
3,000 to 6,000 marks	9.05	8.4
6,000 to 9,500 marks	1.92	2.28
9,500 to 30,500 marks	1.49	1.89
30,500 to 100,000 marks	0.22	0.37
Over 100,000 marks	0.05	0.07

The following table shows the percentage of total income tax paid by those having the above-classified incomes:

Income.	1891-'92.	1892-'93.
	Per cent.	*Per cent.*
900 to 3,000 marks	35.54	28.6
3,000 to 6,000 marks	23.5	16.32
6,000 to 9,500 marks	9.98	9.78
9,500 to 30,500 marks	16.25	18.68
30,500 to 100,000 marks	7.7	13.62
Over 100,000 marks	7.03	13

ALBERT H. WASHBURN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Magdeburg, November 7, 1892.

AUSTRALIAN FROZEN MEATS IN EGYPT.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

The following clipping from the Egyptian Gazette of yesterday may be of interest to dealers in American meats:

> About two months ago there was delivered to the refrigerating stores of Messrs. Wills & Co. (limited) at Port Said the first consignment of frozen meat ever received from Australia into Egypt.
>
> Apart from the general interest which may be excited by the incident at the thought of the difference between the ancient and this modern method of "meat-preserving" in the land of the Pharaohs, this attempt at establishing a new market for the sale of Australian surplus stock must be regarded by those concerned in the pastoral industry of Australia with feelings of the liveliest interest. Although the market thus established can never attain the magnitude of that of the great British centers, still the dearth of animal food in Egypt, the large population—which, without doubt, under British protection is increasing in wealth, and whose living is gradually reaching an improved standard—combined with the outlet which will be found in the supply of ships passing through the Suez Canal will, we have every reason to believe, create a sufficient demand to enable a prosperous start being made by the proprietors of the new venture. We understand that it is hoped that a considerable share of the meat will be used by the Egyptian troops, and there is also an intention, as the way becomes clear, to supply several of the Mediterranean ports from the depot at Port Said.

Should the latter scheme prove practicable, as there seems every reason to believe, the importance of Port Said as a frozen-meat center should become very great indeed.

The firm—Messrs. Wills & Co. (limited)—who have thus inaugurated the new trade in Egypt have offices at Liverpool and London. Associated in the initiation of the business are Messrs. M'Ilwraith, M'Eacharn & Co., of London and Melbourne, whose pioneer cargo by the steamer *Strathleven* first demonstrated the practicability of a profitable trade in frozen meat from Australasia to Europe; and it seems quite in the natural order of things that they should be connected with the new development. The meat is being supplied by Messrs. Nelson & Sons (limited). With the joint efforts of the firms we have named there is no doubt that the success of the venture will be well earned, and we hope we may shortly learn that it has been achieved in a gratifying measure.

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES CONSULATE-GENERAL,
Cairo, September 21, 1892.

TOBACCO CULTURE IN NICARAGUA.

REPORT BY CONSUL NEWELL, OF MANAGUA.

The Republic of Nicaragua derives its revenue from eleven sources, but the greatest income is gained from customs, whisky, and tobacco, and it is of the latter that this article treats.

The Government has a complete monopoly of whisky, tobacco, and gunpowder. Every drop of aguardiente and every leaf of tobacco must be sold to the Government. It regulates the price at which it will purchase these commodities, the persons from whom and the places where they can be bought, and the price at which it will sell to the general public.

The Government, in order to extend the growth of tobacco, decreed on the 24th of last July that the number of plants which it would permit to be grown would be 8,000,000, 7,000,000 of which should be Chilcagre and 1,000,000 Iztepeque tobacco, to be distributed throughout the Republic in the following manner:

Kind of tobacco.	Department.	Plants.
Chilcagre	Masaya	2,500,000
	Granada	1,500,000
	Rivas	1,000,000
	New Segovia	500,000
	Leon	500,000
Iztepeque	do	500,000
Chilcagre	Chinendega	1,000,000
Iztepeque	do	500,000

The chief of the bureau of tobacco, in connection with the subdelegates of hacienda, designates the zones in the different departments where the tobacco shall be grown, and these persons are authorized to celebrate contracts for the planting of not less than 20,000 nor more than 100,000 plants by any one person. The person who contracts for permission to raise tobacco must deliver to the Government representative 7 arrobas, that is, 175 pounds, of tobacco for each 1,000 plants that he grows. The Government buys all the tobacco raised at the rate of $25 per quintal (100 pounds) of Chilcagre tobacco of the first class, $12 for Chilcagre of the second class, $20 for Iztepeque tobacco of the first class, and $10 for Iztepeque of the second class.

In certain parts of Central America, notably Nicaragua and Salvador, the tobacco is divided into two classes—Chilcagre and Iztepeque. The first named is very strong and is employed in the manufacture of cigars, while the latter is mild and is used almost exclusively in the fabrication of cigarettes.

The best tobacco grown in Nicaragua is found in the department of New Segovia at a place called Jalapa, but the production is so small that very little is known of the tobacco. Persons who have smoked this tobacco say that it has flavor and an aroma equal to the tobacco of Habana. Most of the cigars and cigarettes of native manufacture are from the department of Masaya. The Nicaraguan name for a cigar is "puro," and "cigarillo" for a cigarette.

A glance at the statistics here quoted will show what an immense profit is realized by the Government from the monopoly of this industry.

The income derived by the Government from tobacco was as follows:

1888–'89	$254,645.33
1889–'90	284,468.17
Total	539,113.50

By a comparison of the production of the biennial period 1888–'90 with the biennial period 1886–'88, we have the following result of the income per month:

1886–'88	$16,142.79
1888–'90	22,463.06

It will be seen at once that the income from tobacco in the biennial period 1888–'90 was $6,320.27 more per month than in the biennial period immediately anterior. In other words, the revenue from this article in the fiscal years 1888–'90 was $151,568.48 greater than in the previous economic period, being an increase of 39.1 per cent.

The expense attending the collection of this revenue was larger in the year 1889–'90 than in 1888–89, as follows:

1888–'89	$109,738.71
1889–'90	154,802.32
Total	264,541.03

Comparing the expenses incident to the collection of this product of the biennial period 1888–'90 with the biennial period 1886–'88, we find it was less by $810.41 per month. The expenditures per month in the first period named were $11,832.95, as against $11,022.54 in the latter.

By an examination it is found that the income derived from tobacco in the fiscal years 1888–'90 was $539,113.50, while the expenses for the same time were $264,541.03, producing a net income to the Government of $274,572.47.

The increase of the income from tobacco has been notable with respect to the biennial period 1888–'90; but when we consider the operations of this industry we discover that they have not been entirely regular, for in the period noted a diminution of 11.5 per cent is observed in comparison with the biennial period 1884–'86. The yield of 1888–'90 surpassed only by 6 per cent the estimate that was calculated. Though the yield of 1884–'86 was great, it was not, nevertheless, the best in the annals of this revenue.

Experience has demonstrated that this industry alternates annually. As to the amount of production, the last biennial period is of good result.

In order that the tobacco raised here might be better known, the Government sold a quantity of the harvest of 1888 for exportation, and this sale contributed to largely increase the revenue.

The income derived by the Government from this commodity was 12.23 per cent of the total revenues. The net gain to Nicaragua from this industry was 76 per cent in comparison to the amount expended in the purchase of tobacco.

The net product to the Government, 43.2 per cent, was greater by 0.8 per cent than in the preceding biennial period, while the expense, both as to the purchase of tobacco and other expenditures, was less by 56.7 per cent than in the biennial period 1886–'88.

The officials have been meditating the advisability of permitting the free cultivation of tobacco. Should this be done, it is thought that the number of plantations would be largely increased and that the quantity annually produced would be more than sufficient for home consumption. Thus a trade would be engendered with foreign countries, augmenting at once the revenues and the prosperity of the Republic.

One of the late ministers of the hacienda strongly advocated the levying of a nominal tax and giving free license for the culture of tobacco. He believed that it would not only increase the revenues, but would without doubt produce in the minds of the planters a desire to cultivate a better article for consumption, and thus the consumer would be the gainer in quality and price. Smuggling would not be indulged in, as the motive for so doing would be removed. Under this system the expenses in this department would be much less.

For some time the Government has felt the necessity of reorganizing the administration of tobacco and placing it upon a better footing. The loss from smuggling has been found greater in this branch than in any other, notwithstanding the efforts made to prevent it. Many are the complaints that are heard respecting contraband transactions in some parts of the Republic. The transgressors of the law care little for the authorities; in fact, they make fun of their vigilance and make ineffectual their efforts to stop this nefarious business. Contrabanding is carried on not only on a small scale, but also to a large extent, occasioning grave losses to the public treasury and in particular to the interests of national enterprises. Smuggling is not alone confined to tobacco, but it is carried on in the sale of aguardiente, and sometimes extends to merchandise. Contrabanding is conducted here with a cunning inimitable and a sagacity that is difficult to be surprised. With such a situation the revenues have diminished, and it is probable that the actual financial difficulties are due in part to this cause.

The amount of tobacco raised in the year 1890 was 795,687 pounds; in 1891, 175,147 pounds. Thus it will be perceived that the production of the year 1891 was 620,540 pounds less than in the previous year. It is owing to the bad winter of last year that there is such a notable difference in the production. As the rains of this winter have been copious, the yield of 1892 should be as great as any in the history of this industry.

The falling off of the tobacco crop and a small yield of coffee in 1891 have combined to make the money market here stringent. The outlook for next year is brighter, and I expect to see Nicaragua experience a better financial condition than she has known for years.

WILLIAM NEWELL,
Consul.

UNITED STATES CONSULATE,
Managua, September 15, 1892.

RAILWAYS AND TELEGRAPHS IN PARAGUAY.

REPORT BY CONSUL SHAW, OF ASUNCION.

RAILWAYS.

The only railway at present in operation in Paraguay is managed by private enterprise, known as the Paraguayan Central Railway Company (limited), with head offices in London. One-half of the railway is controlled by English capital and the other half by the Paraguayan Government. When the Government sold one-half to the English company, they made a contract to the effect that the road should be extended from Villa Rica by said company to Encarnacion, on the Alto Paraná River, a distance of 132 miles, within five years. One-half of the work to the River Pirapó has been completed, but, owing to the financial crisis and the failure of the contractors (Perry, Cutbill, & Co.), the remaining half is incompleted.

The average rate of freight per ton per mile is equal to 2½*d.* (English).

Passenger rates per mile are as follows: First class, 3 farthings (English); second class, 2¼ farthings; third class, three-fourths of 1 farthing.

There are 150 miles of line in operation. The number of persons employed is as follows: Maintenance of line, 270; workshops, 90; stations and telegraph, 112; administration, 30; total, 502.

The rates of wages are as follows: Laborers, £1 10*s*. monthly; station masters, £1 10*s*. to £5 monthly; mechanics, £2 10*s*. to £5 monthly; clerks, £2 to £8 monthly; head officials, conventional. The above rates are calculated at the present rate of exchange.

All receipts are collected and all wages paid in the paper currency of the country, with the exception of some salaries of head officials, which are paid in gold.

For the year ended October 31, 1891, the gross earnings were $391,743 (paper), equal to £17,807; net earnings, £1,862. For the year ended October 31, 1890, the gross earnings were $286,633 (paper), equal to £34,327, and the loss on working £494. The falling off in the gold equivalent in 1891 is occasioned by the advance in the gold exchange from $8.35 (paper) to £1 in 1890 to $22.05 (paper) to £1 in 1891.

The approximate cost of the road per mile is £6,800.

Up to within a few months the railway has not been a paying institution, owing to the financial crisis and general mismanagement. The railway was placed upon the London money market on April 29, 1889. The capital was £482,930, and £210,000 6 per cent preference shares were given to the Government of Paraguay in part payment of the line from Asuncion to Villa Rica, and the remaining issue was £272,930 in ordinary shares and £400,000 in 5 per cent debentures. The guaranty of the Government upon the line was 6 per cent for twenty years for a cost not exceeding £6,000 per kilometer on a length of 219 kilometers. The number of passengers carried during the year 1888 was 257,688 and the amount of traffic $161,550; in 1889, 235,407 passengers and $286,632 traffic; in 1890, 275,480 passengers and $286,633 traffic; and in 1891, 300,206 passengers and $391,743 traffic. All the traffic is calculated in the depreciated paper money.

In June, 1892, work was commenced extending the main line of the tramway from Villa Morra, a suburb of Asuncion, to San Lorenzo, a distance of 9 miles. Mr. Ogilvie, an Englishman, the owner of the line, purchased two engines from the Porter Car Works, Pittsburg, Pa., of 13 tons each, which are now in satisfactory working order; also six English engines and coaches. The line will be completed within six months, and run by steam from the railway station in Asuncion to San Lorenzo, a distance of 9 miles, opening up an excellent agricultural district and giving the people of Asuncion a mode of rapid transit which has been a long-felt want. From the railway station connecting with the steam line under the same management are horse trams running in all directions along the principal streets, with a service second to none in South America.

TELEGRAPHS.

There are two lines of telegraph—one owned and operated by the Government from Asuncion to Paso de Patria, the limit of Paraguayan territory, and the other by the railroad from Asuncion to Pirapó, on the river of the same name.

Messages are sent at the rate of 40 cents (paper) for ten words; over ten words, a trifle cheaper. The number of persons employed by the railroad is 20; by the Government, 8. Wages range from $50 to $150 (paper).

It is impossible to get any information as to the net and gross earnings of the system.

The number of miles of Government wire is 210; on railways, 150 miles of wire. The approximate value is: Government, $500 (gold) per league (3 miles); railway line, $250 (gold) per league.

The proportion of the persons employed in the telegraph service who are also included in the railway service is 20 per cent.

It is impossible to get any data in regard to the telegraph, as the head of the office does not seem disposed to furnish it. But I might say from personal observations that the line has not been a success financially. Owing to high water and camp fires, the line is interrupted for days at a time. At Paso de Patria the line breaks, there being no cable over the Alto Paraná River, which is 3 miles wide. Communication is by canoe, which takes messages over in the morning to the Argentine side and returns to the Paraguayan side at night. An important telegram is often delayed ten to fourteen hours. Another great loss to the line is the burning of their posts, which could be easily overcome by placing in such parts of the camp where these fires rage a number of iron posts. The life of an ordinary wooden post is from seventy-five to one hundred years.

ELECTRIC LIGHT.

Although in the midst of a financial crisis, building and improvements are going ahead in rapid strides. In fact, within the last year and a half more material has been used in building and improvements than for some years previous. The Hotel Caucha has a very fine electric-light plant, which, with a little improvement, is capable of furnishing light and motive power to the entire business and residence portion of Asuncion.

TELEPHONE.

And last, but not least, is the telephone system, which has proved a grand success, not only rendering important service to the business men, but bringing the suburban towns in close communication with the capital. Each person desiring a telephone pays a fee of $25 (paper) for placing his name on the list and $10 (paper) per month. At the present rate of exchange (September, 1892), with a tendency to rise, it is seen at a glance that the service is exceedingly cheap.

EDMUND SHAW,
Consul.

UNITED STATES CONSULATE,
Asuncion, September 22, 1892.

PARAGUAYAN TARIFF AND AMERICAN TRADE.

REPORT BY CONSUL SHAW, OF ASUNCION.

IMPORT DUTIES.

All imported foreign merchandise pays an ad valorem duty of 25 per cent, with the following exceptions: Firearms, powder, shot, fine wines and liquors, perfumery, tobacco, cigars, and matches, 50 per cent; clothing, hosiery, saddlery, harness, and carriages, 40 per cent; all articles made of silk, ordinary table wines, and beer, 30 per cent; jewelry and precious stones, 10 per cent; horses, cattle, fresh fish, Portland cement, Roman earth, furniture of immigrants, gold and silver (coined or uncoined), empty bottles, printed books, globes, maps, scientific instruments, printing presses and type, coal, iron, resin, soda, oil, animal black, and all agricultural implements for immigrants are exempt from duty.

All foreign merchandise subject to duties of importation pay according to the declared value, with the following additional duties: Four per cent for the support of the national college and superior education, 4 per cent (law of May 1, 1882) and 8 per cent (law of March 6, 1886) for amortization of national bank notes, and 3 per cent (law of March 6, 1886) for the council of education.

The amount of import duties exceeding $300 may be paid in bills, half at sixty days' sight and the balance at one hundred and twenty days' sight, including interest at 1½ per cent monthly; the additional duties of 4 per cent for the support of the national college and superior education in bills at ninety days' sight; the additional duty of 8 per cent in bills at forty-five days' sight, including interest at 1½ per cent monthly. Flour pays 19 per cent additional duty in the form indicated (law of September 11, 1891). All other duties are payable at sight.

According to the law of July 1, 1892, the following articles pay an additional duty of 100 per cent over the present rate: Comestibles and other articles (?) (with the exception of tobacco leaves from Habana or other ports), common table wine, ordinary glassware, ordinary china, and hardware.

The duties on the following articles are trebled: Woven goods (with the exception of cotton), shirtings, prints, and point dress goods, woolen baize, beverages in general (with the exception of common table wine), porcelain, crystals, cut glass, fine furniture, fine china, hats and caps, manufactured hides and skins, saddlery, boots and shoes, musical instruments, watches, clocks, jewelry, common drugs and paints, special medicines and articles for the use of drug stores, arms, confections, haberdashery, lamps and their fixtures, and all other articles not mentioned in the tariff.

Duties on playing cards, tobacco in leaves, alcohol, cigars of all classes, and wax matches are quadrupled.

EXPORT DUTIES.

The export duties are as follows: Paraguayan tea, ground (law of August 29, 1891), 25 cents per pound; Paraguayan tea in leaf (law of August 29, 1891), 30 cents per pound; tobacco tied with ibira (law of August 29, 1891), 25 cents per pound; tobacco tied with wire (law of August 29, 1891), 15 cents per pound; hides (law of August 29, 1891), $1 each.

AMERICAN TRADE.

The new United States tariff has had no effect on Paraguay as yet, as the country imports very little from the United States, and there is no direct communication. All goods are bought through houses in Montevideo and Buenos Ayres. This country needs a sample house where American articles and goods can be displayed and ordered through one large shipping firm. As a general rule, goods from the United States have a ready sale over those of Europe, and I have observed personally that goods from the United States far excel the English, French, and German; but the credits of these countries are from three to six months, while the United States offer less.

EDMUND SHAW,
Consul.

UNITED STATES CONSULATE,
Asuncion, September 22, 1892.

PRIVILEGES OF CONSULAR SERVANTS.

TRANSMITTED BY CONSUL WILDMAN, OF SINGAPORE.

[From the Singapore Straits Times.]

On Monday, July 25, we reported a case in which a Singapore creditor had garnished in the hands of the United States consul a quarter's salary due by the consulate to an Eurasian clerk. The United States consul, Mr. Rounsevelle Wildman, who appeared in person before Acting Chief Justice Wood, contended that the clerk of the consulate was not his clerk, but a clerk employed by the United States Government; and he pointed out that to garnish the salary of this clerk in his hands was practically to arrest money in the hands of the United States Government. The court, after consideration, decided that the garnishment was of no effect. The following is an extract (verbatim) from the judgment:

"I consider that the clerk is, in fact, a clerk of the United States Government, and that, by depriving a man in the employment of the United States Government of his entire means of subsistence, it is an interference with the establishment of a foreign state; and as we, for reasons of domestic policy, exempt from attachment the salaries of our own public servants, by the comity of nations we are bound to give the same privilege to the public servants of a foreign state. No order."

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 149.—FEBRUARY, 1893.

THE WORLD'S SILVER.

REPORT BY VICE-CONSUL CAMERON, OF SYDNEY.

A few years ago governments, the press, and the general public paid little or no attention to the silver question; in fact, they avoided the subject. All the mints declined to coin silver for their own account, with the exception of India, where 1,820,000 pounds of refined silver were absorbed during 1888. China and the Straits took the same amount as in 1887, namely, 830,000 pounds. The United States consumed 1,584,000 pounds, Austria 250,000 pounds, and other countries 1,200,000 pounds.

In 1889 the consumption of fine silver was as follows:

Description.	Quantity.	Description.	Quantity.
Imports:	*Pounds.*	Coinage:	*Pounds.*
India	2,160,000	Europe	840,000
China	770,000	Other countries	194,000
The Straits	520,000	Japan	456,000
		America	1,632,000
Total	3,450,000	Remaining in Mexico	140,000
Returned by India and China	192,000	Used in manufactures	1,200,000
Balance	3,258,000	Grand total	7,720,000

The mineral outturn was 7,760,000 pounds, thus closing the year with apparently no silver existence in the entire universe.

The year 1891 opened under most favorable auspices, silver being quoted at the highest figure of the previous year—say 44⅜*d.*—and, in April, America became a purchaser at 48*d.*, which, owing to the probability of the silver bill becoming law in the United States, rose to 49*d.* in June, to 51*d.* in July, and to 54⅝*d.* in August, when that measure was passed. But this figure was not maintained, shortly falling to 50¾*d.*, attaining to 51½*d.* in October and in the same month again dropping to 48⅛*d.* In November, when, owing to the inclemency of the weather, the output of the mines fell off, the price was as low as 45*d.*, rose to 49⅛*d.* in December, and the year closed at 47½*d.* Attention should, of course, be paid to the silver balance of this memorable year. The consumption of fine silver was as follows:

Description.	Quantity.	Description.	Quantity.
Exports:	*Pounds.*	Coinage—Continued.	*Pounds.*
India	3,400,000	Japan	460,000
China	360,000	Other countries	186,000
Straits	269,000	Total	7,840,000
Purchased by United States	2,234,000	Used in manufactures	1,200,000
Remaining in Mexico	140,000	Purchased by American syndicate	940,000
Coinage:		France	240,000
England	320,000		
Austria	160,000	Grand total	10,220,000
Spain	320,000		

That is to say, the demand for silver during 1890 was 10,000,000 pounds, an amount never before heard of and impossible to be produced in one year, the annual output never having exceeded 8,400,000 pounds. Hence a deficit arose of 2,000,000 pounds in round numbers, the first effect of which was felt in India. China came to her aid with 720,000 pounds, and the Straits contributed 240,000. Roumania sold 50,000,000 francs and Russia 20,000,000, so that India indirectly received 1,280,000 pounds. The difference may have been covered by outstanding stocks in the hands of American miners, or the amount purchased by the French and American syndicates may have been exaggerated; but the fact remains that the demand for 1890 was the most extraordinary on record, and was based on American purchases. What, then, was the reason that the price never rose to par, *i. e.*, to 59*d.* per ounce, or, failing this, why was it not maintained at 54⅝*d.*, the figure it had already reached?

These questions naturally occur to anyone interested in the movements of the silver market during past years, but as yet no satisfactory explanation has been given.

Remittances of silver to the East were very limited in 1891, for, although the crops in India were very abundant, the imports of this metal during 1890 were in excess of demand; and up to September 24, 1891, only 3,078,000 pounds were taken, against 6,428,000 pounds in the preceding year. During the same period the imports into China and the Straits only replaced their exports of 1890.

No country seems to be in a condition to contribute to bring about a healthier status in the silver market. It is impossible for Belgium to gather in her hundreds of millions of francs actually in circulation in France, and she will be obliged to sell the greater part of her 204,000,000 francs deposited in the bank of that country. Italy is in a like position, with some 300,000,000 francs in France. Holland is in want of gold to keep up her circulation. Germany must sell 100,000,000 or 150,000,000 marks. Russia is doing all in her power to increase her reserve of that metal, having sold, as before stated, a considerable amount of silver.

The United States figure for £7,100,000 as a silver-producing country, to which may be added £6,500,000 from (chiefly) American capital invested in Mexico, where the output of gold is comparatively *nil*, making a total of £13,600,000 of the former against £6,000,000 of the latter metal.

With a view of arresting the silver panic in India, two plans have been suggested—one to fix the value of the rupee at 1*s.* 6*d.*, the other to stop the free coinage of silver. Now, it is self-evident that the value of the rupee outside the Indian territory can not be fixed by any decree of that Government, nor would it be more than nominal even within the country itself. Silver is bought to a large amount to be coined in India, and, if minting is stopped, the demand would be reduced and the price would fall in proportion, reducing the rupee to a token only; and, while its value would be nominally advanced, the metal of which it is composed would be so depreciated that standard silver would no longer be worth its weight in standard silver coin. Neither of these plans appear to offer a practical remedy for the evil. At the present time New South Wales and the sister colony of Victoria are claiming from the British Government the right to coin silver at their respective mints, New South Wales basing her right on the fact of her being not only the parent colony, but also the one in which nearly all the silver of Australia is produced. Both colonies assume that the profits should accrue to the issuing mints, whereas it is asserted, on the contrary, that the true principle is that the people among whom the coin is current should reap the benefit of the gain between the intrinsic and minted value thereof.

ALEXANDER CAMERON,
Vice-Consul.

UNITED STATES CONSULATE,
Sydney, September 16, 1892.

MINERAL PRODUCTS OF NEW SOUTH WALES.

REPORT BY VICE-CONSUL CAMERON, OF SYDNEY.

When writing my report on wool, etc., I remarked that the next most important interest of New South Wales, namely, mining, was then in bad odor. The annual report of the department of mines for the year 1891 tends, however, to show that this feeling did not exist until lately. This is due, I venture to think, more to the action of certain unscrupulous adventurers whose "wild-cat" schemes have victimized honest speculators than to any dissatisfaction with the results of mining enterprise in general.

The increase for the year 1891 over 1890 in the value of the mineral products of this colony amounts to £1,371,169 and tends to show that, in spite of the many mines standing idle through ignorance of the proper methods for treating the ores and of the profitable ways of saving much that is now wasted, mining industries have made very considerable strides during the past year. Indeed, were these difficulties as regards refractory ores, etc., overcome, an enormous output might be anticipated.

The following is a comparative table showing the quantity and aggregate value of the minerals produced in New South Wales during 1890 and 1891:

Minerals.	1890.		1891.	
	Quantity.	Value.	Quantity.	Value.
		£ s. d.		£ s. d.
Alunite ......ounces...	200	3,000 0 0	704	1,888 0 0
Antimony ......do......	1,026	20,240 8 6	114.85	22,057 0 0
Bismuth ......do......	2.1	306 0 0	0.4	500 0 0
Coal ......tons...	3,060,876.48	1,279,088 19 5	4,037,929.3	1,742,795 12 6
Cobalt ......do......	......	......	1.15	470 0 0
Coke ......do......	31,097	41,147 3 7	30,310.35	34,473 5 10
Copper ......do......	3,745.9	173,311 0 0	4,525.55	205,093 0 0
Fire clay ......do......	......	......	16.8	55 0 0
Gold ......ounces...	127,760.64	460,284 16 2	153,335.62	558,305 12 3
Grindstones ......number...	......	......	471	311 0 0
Iron* ......tons...	3,413.44	39,948 12 2	4,125.81	36,101 0 3
Lead, pig ......do......	126	1,587 0 0	190.65	2,085 0 0
Lime ......do......	......	......	410	958 0 0
Limestone, flux ......do......	41,436.8	41,989 5 9	74,057	65,357 6 2
Manganese ......do......	100	325 0 0	138.2	340 0 0
Marble ......packages...	......	......	635	2,577 0 0
Oxide of iron and pig iron ......tons...	455.3	884 0 0	288.75	434 0 0
Shale ......do......	56,010	104,103 7 6	40,349	78,160 0 0
Silver† ......do......	496,552.2	95,410 0 0	729,590.05	134,850 0 0
Silver-lead and ores ......do......	131,039.65	2,667,144 0 0	147,779.7	3,484,739 0 0
Slates ......number...	......	......	31,234	351 0 0
Stone:				
Building ......do......	......	......	4,735	5,205 0 0
Ballast ......tons...	......	......	619	713 0 0
The Nable opal ......pounds...	195	15,600 0 0	......	......
Tin ......tons...	3,668.75	329,841 0 0	3,144.52	271,412 0 0
Zinc spelter ......do......	210.45	2,378 0 0	218.6	2,682 0 0
Sundry minerals ......do......	973	7,252 0 0	788.95	3,217 0 0
Total	......	5,283,840 13 1	......	6,655,009 17 0

* Not manufactured from the ore, but from old iron.

† The greater part of the silver produced is exported in the shape of silver-lead.

Of emeralds, 24,000 carats were got from Emmaville, the value being unknown.

ALUNITE.

At Bulahdelah, 150 miles to the north of Sydney, in the Hunter district, some 3,000 tons of alunite have been raised, of which 1,500 tons have been shipped to England, where the company has extensive works for the treatment of the raw material, while a considerable quantity of alum has been sent to Sydney.

ANTIMONY.

Some lodes with occasionally large bodies of ore have been found in the Kempsey division, about 300 miles north of Sydney, and 1,580 tons of this mineral were won in that of Armidale, 50 miles further north. Unfortunately, the market value has ruled too low to give satisfactory results. Forty-five assays were made during the year by the Government mines department, the ore coming from Armidale, Ashford, Bellinger, Bingera, Bukkulla, Bonshaw, Clarence, Drake, Dungoz Creek, Grafton, Hillgrove, Nambucra, Nundle, Paterson, and Tamworth districts, the percentage of antimony ranging from 26.86 to 70.82 per cent, with traces of gold and silver in nine instances.

BISMUTH.

During the year twenty-eight assays were made for bismuth from Hillgrove, Pambula, Oban, and Wyndham, yielding from 1.45 to 25 per cent of metallic bismuth, and in one case as much as 10 pennyweights 21 grains of gold and 11 ounces 6 pennyweights 11 grains of silver per ton.

COAL.

Coal was first discovered in this colony at Port Stephens, 70 miles north of Sydney, early in 1796; but it was not until the year 1800 that it was exported, and then only to the extent of 45 tons to the Cape of Good Hope, where it realized £6 per ton. Twenty-six years later the Australian Agricultural Company was formed, with a capital of £1,000,000, a free grant of a like number of acres of land, and the sole right to explore the Hunter River district coal fields. Their actual coal-producing operations were carried on for eighteen years, during which period their average annual output was only 18,000 tons. When this privilege fell through other companies were formed, and from 67,600 tons in 1851 the total output of the colony has risen to 4,037,929 tons in 1891.

The coal regions of New South Wales are estimated to cover an area of about 24,000 square miles and are divided thus: The northern division, consisting of the mines in or about Newcastle, the valley of the Hunter, Hexham, East and West Maitland, Greta, and Singleton; the southern division, embracing the collieries of the south coast from Mount Kembla, Wollongong, Bulli, Clifton, and Helensburg; and the western and south-western division, formed by the mines about Lithgow, Hartley, Katoomba, Rylstone, Wallerawang, Moss Vale, and Mittagong.

These names, however, are far from covering the area of the known coal measures, as others have been found as far as Dubbo, 278 miles west of Sydney, while they also extend on the southern coast to Ulladulla, 164 miles south of the metropolis, and thence north to the dividing range. Coal also shows itself from the Clarence River to the Queensland border, and inland on the Liverpool Plains to the Dumaresq River, which separates New South Wales from its northern neighbor.

In the northern division the mines are chiefly worked by shafts of from 300 to 400 feet in depth, that at Greta being 460. On the other hand, almost all those of the southern division are worked by tunnels or drives, the striking exception being the Metropolitan Colliery at Helensburg, where the shaft is 1,150 feet deep, the main workings having 1,600 feet of solid sandstone above them. In the western divisions shafts are the rule and tunnels the exception.

The qualities of the coal of the respective divisions are shown in the following table:

Table showing analyses of coal made by Prof. Leveridge, M. A., F. R. S., F. G. S.

Division.	Number made.	Water.	Volatile hydrocarbons.	Fixed carbons.	Ash.	Sulphur.	Mean specific gravity.	Average yield of coke.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*		*Per cent.*
Northern*............	42	2.45	35.51	54.29	6.8	0.88	1.3	61.14
Southern†............	27	1.55	24.11	63.53	10.01	0.76	1.36	73.88
Western‡............	26	2.67	28.99	58.13	9.73	0.73	1.35	67.9

*Brighter and more laminated than southern or western coal; yields larger proportion of volatile hydrocarbons, hence better suited for gas; gives bright, hard, sonorous coke.

†Not so bright as northern; does not coke in open fire, but when treated in ovens cokes very good.

‡Dry and dull appearance; only cokes when freshly raised.

The total number of persons reported as having been employed in coal-mining during 1891 in this colony is 10,820, of whom 2,102 worked above and 8,718 under ground. The miner pure and simple is the man who detaches the coal from the face and puts it in the skips, which are then taken by the wheelers to the foot of the shaft, when the onsetters place them properly in the cage. Miners usually work in pairs, one pair in each bord or heading, and it is their duty to take out any band or foreign matter running through the seam, so as to send out only clean coal, a certain specified weight being in each skip. The system of working these skips is a peculiar one, but originates with the union, and is strictly enforced. If a wheeler has to supply three pairs of miners, of whom one pair can fill ten skips and the other two only eight and six skips, respectively, an average is struck and eight is the maximum allowed to any pair, although perhaps they can fill ten while another pair near them can not fill two of the eight to which they are entitled.

On reaching the surface the skip is run by the bankers-off to the edge of the platform and the contents tilted out against a screen, under which is a truck to receive such small coal as falls through, the larger pieces rolling into other trucks ready to convey them to market.

Besides the foregoing there are screen men, overmen, deputy overmen, water-bailers (whose duty it is to remove any accumulation of water in the mine), general laborers above and below ground, enginemen, firemen, mechanics, stablemen, and boys.

A fair average of the daily wages usually paid the above is:

Description.	Wages.	Description.	Wages.
	s. d. s. d.		*s. d. s. d.*
Locomotive-engine drivers	10 0 to 12 0	Bankers-off	7 6 to 8 6
Locomotive-engine stokers	7 0 to 8 0	Wheelers	4 0 to 7 6
Engine-drivers	9 0 to 15 0	Horse-drivers	3 4 to 7 6
Firemen	7 0 to 8 0	Flatters	4 6 to 8 6
Overmen:		Trappers	2 0 to 3 0
Below	10 0 to 14 0	Furnace men	6 6 to 7 6
Above	11 6 to 13 0	Stablemen	7 0 to 7 6
Deputy overmen	9 0 to 11 0	Harness-makers	7 6 to 8 0
Screen overmen	9 6 to 10 0	Water-bailers	6 6 to 7 6
Screen men	6 6 to 7 0	Boys	3 0 to 3 6
Shift men	7 0 to 10 0	Laborers:	
Plate-layers	8 6 to 10 0	Below	6 0 to 7 6
Blacksmiths	8 6 to 10 0	Above	6 0 to 7 6
Mechanics	9 3 to 10 6	Boys	2 6 to 3 0
Onsetters	6 6 to 10 0		

To the miners themselves the amount paid for hewing varies in different districts, according as the coal is easy or not to work, the ruling idea apparently being to place the miners' daily wages on the footing of from 9*s.* to 10*s.* The hewing rate of the southern and western districts is 2*s.* 4*d.* per ton; that of the north, 3*s.* 10*d.* To this figure it has been lowered from the 4*s.* 2*d.* ruling previous to January 1, 1892, on account of an agreement between the colliery-owners and the miners of the last-named district, whereby the hewing rate was made dependent on the price of coal on the following scale: If coal sold at 12*s.* per ton, the hewing rate was 4*s.* 6*d.*; if sold at 11*s.* per ton, 4*s.* 2*d.*; if sold at 10*s.* per ton, 3*s.* 10*d.*; if sold at 9*s.* per ton, 3*s.* 6*d.*, the latter being the absolute minimum. Then, again, the thickness of the seam, the width of the drives, and the amount of dirt, etc., have to be considered in the miners' pay. An allowance is made for every inch less than the standard thickness (5 feet) of the seam. In all drives of a lesser width than 8 yards an allowance per linear yard of deficiency is made; if the band or extraneous matter, *i. e.*, dirt, is more than 6 inches in the standard thickness of the seam (5 feet), the miner gets proportionate compensation. The men have to find their own tools, besides powder and fuse, which in the Hunter River district is estimated to cost 1*s.* 3*d.* to 1*s.* 6*d.* per week per man when in full work. That the gains of the wheelers, bankers-off, etc., depend upon whether or not the miner is at work must not be overlooked.

Circumstances influence to a great degree the quantity of coal which any two miners can win daily, apart from their individual skill, such as the nature of the ground, etc. Hence the custom which prevails of "caviling," that is, drawing lots for working stations when the manager has determined on the line of workings for the ensuing quarter, nor does any change take place until that period has passed and a new "cavil" is held.

Five tons for each pair of miners in eight hours is considered to be a fair average, which, at 3*s.* 10*d.* per ton, would give each man 9*s.* 7*d.* per day, less fuse and powder (1*s.* 3*d.* to 1*s.* 6*d.* per man per week), say 9*s.* 3*d.* to 9*s.* 4*d.* net each. Against this must be placed the fact that their work is anything but constant. Deducting every alternate Saturday, the pay day, as a holiday, the miner has only eleven days per fortnight in which to work, even if the mine is in full swing, and, unfortunately, throughout the district six or seven days per fortnight have been the rule; consequently the men have not averaged more than 33*s.* per week all round.

The coal in the western and southern divisions is much easier to get, nor are the miners put to the same expense for blasting; consequently they earn about as much as their northern brethren, in spite of the hewing rate being less. It is again due to the want of constant work that they do not make more on the average, as the daily working earnings have been from 9*s.* to 10*s.* per man in the southern mines, with 9*s.* 6*d.* to 10*s.* 6*d.* in those of the western district.

It is not the rate of pay, apparently, which fails to satisfy all hands employed in collieries, but the absence of constant work. On the other hand, practical experience tends to prove that, even when the foregoing conditions are available, the men consider five days per week as the labor return which ought to be expected of them, probably because they find they can live at comparative ease on this basis.

Emanating, I believe, from the miners themselves, the idea has been suggested that a species of apprenticeship should be insisted on to qualify a man to work as a coal miner, which seems only reasonable in view of the insistence of this preliminary training which prevails in almost every other branch of industry. Practically the system may be said to exist at present, for, as a rule, a beginner joins an old hand as mate on the understanding that the elder is to receive the greater proportion of their united earnings for a longer or shorter period, whereas two experienced miners divide their gains. The trapper, *i. e.*, the boy of about 14 years of age, who has to see that the ventilating door is carefully closed after the passage of skips or miners to insure no loss of that air which should be forced along the galleries where the men are at work, often raise themselves to the post of foreman by their individual exertions or, if advantageously educated, may become managers.

Generally speaking, miners elect to reside close to their work, and, as the colliery companies usually take up a large surface tract of land for mining purposes, they are permitted to occupy small holdings for their cottages, etc., which they build themselves, paying only a nominal ground rent. One defect attaches to this system, namely, an absence of sanitary conveniences, so essential and so insisted on in municipalities. A striking example of the miners' dislike to such regulations is to be found at Helensburg, where the Metropolitan Company have erected cottages for their employés at rentals of 2*s.* 6*d* to 5*s.* per week; they are, however, but little sought after on this very account, the miner electing to be free to revel in antihygienic principles if he sees fit. What absolute necessity is there for washing off the coal dust before commencing to erect or improve his dwelling and its surroundings, mostly devoted, as are the latter, to poultry and goats? But this want of taste, this preference of the useful to the ornamental, does not extend to the interior of the miners' dwellings, which, generally speaking, give proof that cleanliness and comfort are first factors, while pictures, the inevitable antimacassar, etc., are generally found. Besides, the wives and children make such an appearance on "high days, holidays, and bonfire nights" as speaks highly for the amount of management exercised in view of the limited earnings lately at the miners' command. The traditionary stories of the extravagance of the coal-miners of the old country in times of prosperity do not extend to these colonies, as only sobriety, used in its universal sense, has enabled colonial miners to hold their own under many untoward circumstances.

Twenty fatal and fifty-four nonfatal accidents are recorded during 1891 in the coal mines of New South Wales, which, on the basis of 10,820 men employed, would give 1.85 fatal and 5 nonfatal accidents as the average for every 1,000 men employed. Yet the men complain that not only are they exposed to unforeseen accidents by the collapse of the ground overhead, but have to work in cramped, painful positions, deep in the bowels of the earth, deprived of natural light, breathing vitiated air, and suffering from bad ventilation. The owners, on the other hand, claim that the risks are not greater than those attending many other callings, and point to men of 70 years of age and upwards who have worked in coal mines all their lives as convincing proofs of the employment not being insalubrious. Where blasting is a necessity, the fumes of the powder must necessarily impregnate the air to the detriment of those who have to breathe it; but the mining act makes ample provision for ventilation, the effect of the regulations being that—

> When bords are driven from the main roads, they must not be taken more than 35 yards before "cut-throughs" are made running parallel with the main roads, from which continuations of the bords are made for another 35 yards, when fresh "cut-throughs" have to be made.

A shaft called the "up-cast" is used to create the necessary draft, at the foot of which a roaring fire is occasionally kept burning, causing a current of air to rush toward it from all parts of the mine. Sometimes a steam-driven fan is fixed in the up-cast shaft, which sucks up the air as it revolves; and, by stopping up the necessary openings with débris, traps, or doors, this air is made to circulate throughout all the parts of the mine in which the men are at work. Those miners, however, who are located at the portions of the "split" or district furthest from the "in-take" complain that the powder smoke, etc., penetrate to them, while those nearest get the purer air, and that, so vitiated is the atmosphere which reaches them, they are frequently obliged to leave the face of the coal in order to breathe at the heading. The use of brattices, which is not provided for by the act, is suggested as the remedy; but this would entail additional expense and mean dearer coal. A brattice is a piece of wood or cloth placed right across the heading, diverting the current of air into the bord on one side while it returns by the other. Brattice cloth is canvas covered with tar, costing about 2*s.* per yard, about 24 inches in width, so that, to make a good-sized brattice, several yards are requisite. By leaving the cloth hanging loose the skips can run along the tram rails without delay; but, if wooden brattices are used, doors, with boys to look after them, are required—another source of expense, besides that of moving them as the work advances.

A Government official periodically inspects and notes from the anemometer the exact amount of air passing through the various portions of the mine, the minimum supply obligatory by the act being 100 cubic feet per minute for every man, boy, and horse at work underground, while two of the men are appointed to make a similar inspection every fortnight.

In the Bulli mine, where the disastrous explosion, involving the loss of eighty lives, occurred early in 1887, the ventilation is now so good that naked lights are in use. The Metropolitan, at Helensburg, is considered to be the most "gassy" mine in the colony, locked safety lamps being insisted on, although one of the largest ventilating fans in the world ventilates the mine in excess of the requirements of the act.

The impurity of the air inhaled, permeated as it generally is by fine coal dust, gives origin to a disease known as "miners' asthma;" and the men occasionally suffer from an eye illness, due, it is presumed, to working in semi-darkness and to the artificial light falling at an unnatural angle on the optic nerve. These, I believe, are the only evils directly attributable to a miner's employment.

The growth of intercolonial trade in coal during the past four years is shown by the following table:

Colony.	1888.	1889.	1890.	1891.
	Tons.	*Tons.*	*Tons.*	*Tons.*
New Zealand	140,882	160,637	161,118	168,921
Queensland	7,276	7,311	6,253	14,246
South Australia	94,886	190,412	131,205	264,125
Tasmania	39,999	65,251	56,863	73,488
Victoria	744,425	837,578	778,803	954,277
Western Australia	12,296	15,180	15,302	35,919
Total	1,039,764	1,296,369	1,149,544	1,519,976

Victoria took 176,474 tons and South Australia 132,920 tons more in 1891 than 1890, while Tasmania and New Zealand show a larger consumption.

The export to America and Oceania was as follows:

To—	1888.	1889.	1890.	1891.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Bolivia	1,351	....	....	....
Canada	4,413	....	....	....
Chile	119,505	153,183	173,906	196,186
Ecuador	1,039	....	....	679
Fiji	8,941	13,859	10,636	16,846
Mexico	2,193	10,025	5,564	12,402
New Britain	....	....	920	830
New Caledonia	11,816	14,428	10,061	23,032
Peru	9,921	25,263	24,272	24,835
Sandwich Islands	23,124	28,096	26,509	34,789
South Sea	5,786	7,369	9,126	1,569
Tahiti	....	....	380	377
United States	495,300	407,601	182,692	365,623
Total	683,389	659,824	444,066	677,168

It will be seen that the demand for Oceania has increased, as has also the trade with all continental American countries, the United States excepted, due, I am told, to the large importation of Japanese coal.

The export to eastern ports was:

To—	1888.	1889.	1890.	1891.
	Tons.	*Tons.*	*Tons.*	*Tons.*
China	7,323	15,497	7,238	19,760
Hongkong	48,061	102,703	53,370	59,227
India	36,143	67,266	31,172	21,690
Java	35,653	86,057	35,531	43,689
Mauritius	7,323	15,497	7,238	19,760
Philippine Islands	34,000	59,426	29,543	53,909
Singapore	21,568	66,580	51,660	89,183
Sumatra	1,130	5,449	966	1,330
Other eastern ports	2,902	9,482	6,835	7,574
Total	194,103	223,547	223,053	316,122

During 1890 English, mostly Cardiff, coal was selling in Batavia at £1 per ton, whereas the selling price at Newcastle, New South Wales, was 11*s.*, with no tonnage procurable at 8*s.* 6*d.* Probably low rates of freight in England and charters in consequence contributed to keep Australian coal out of the eastern markets; but this must not be regarded as the principal factor in causing the difference between 86,057 tons taken by Java in 1889 and 35,531 in 1890. True, the trade has so far recovered as to show an increased export of some 8,000 tons in 1891 as compared with the previous year; but the strikes which have so agitated the labor market placed shipowners in the unfortunate position of being compelled to either let their vessels, chartered to load coal at Newcastle, wait the pleasure of the strikers or send them where they could get speedier dispatch. Naturally, the latter course was adopted; and the demand for coal, which had hitherto been met from Newcastle and Sydney, was supplied by what up to that time had been regarded as a nonremunerative industry, namely, the Japanese and Chinese coal mines.

Besides these sources of supply, New South Wales has to contend against British competition for some 800,000 tons consumed by the East Indies and the Pacific seaboard of America. Deduct from this about 200,000 tons for war vessels using the best Welsh coal, and we have 600,000 tons for which this colony could compete, but is handicapped by the drawback that return freight, which is readily found for Great Britain, is not so easily procurable from other consuming countries to Australia. The "sequitur" appears to me that the trade with the other colonies and Oceania must be fostered to insure that expansion which is so urgently called for by increased production. Supposing that one-half of the quantity named above could be secured, the result would be only an increase of a half day's work weekly for the Hunter River miners; but the expenditure, both direct and indirect, involved would form a considerable item.

The strike of 1890 was followed by fairly busy times, many vessels being in port and large orders in the hands of the collieries, so that the total export to foreign ports, which in the preceding year (1889) was 1,077,474 tons and fell by almost one-half in 1890, rose again to 847,473 tons in the following year—say an increase of 175,143 tons. But, once these orders completed, the trade collapsed to such an extent that some of the collieries reduced the selling price from 11*s*. to 10*s*. per ton, which, as previously remarked, entailed the reduction of the hewing rate to 3*s*. 10*d*. in lieu of 4*s*. 2*d*. per ton. The miners contend that this lowering of the selling figure is uncalled for, and that the result is not likely to justify this measure if, as averred by the proprietors, it is taken with the view of commanding an additional consumption. The men maintain that it is simply a financial move to counteract local opposition.

The Hunter River collieries have mooted the question of forming a trust in order to reduce the expenses of management, etc., to which, however, the miner is opposed, chiefly on the ground that if discharged no mine connected with the trust would employ him.

As I have already stated, shipowners have been reluctant to expose their vessels to the risk of detention, etc., at Newcastle, resulting from disputes between proprietors and men; but the latter assert that the diminution in the foreign trade is due to the paucity of tonnage to carry away the coal. Were this remedied, they say, by having a fleet of water-ballasted steam colliers, independent of return freights, they could command a large share of that export trade to foreign ports which has lately fallen away. The colliery-owners as a body object that they would then be handed over, tied and bound, to the power of the men, who, if several boats were waiting for loading, would be in the position of asking and obtaining any conditions they might see fit to exact.

The nearest of the western competitors against southern and northern collieries is distant 70 miles from Sydney, at Katoomba. The freightage by rail, however (1*d.* per ton per mile), renders it impossible for their supply to hold its own in Sydney against Illawarra coal, which is so much nearer the metropolis, consequently the Katoomba, Lithgow, and adjacent mines have to depend on local and railway demands.

A gentleman who for many years was connected with a very large steamship company running a line of steamers along the coast to eastern ports tells me that the greatest possible difficulty was experienced in persuading the directors that it was to the company's interest to use southern coal. The chief engineers were strongly opposed to it, protesting that it did not generate sufficient steam, and that their trips were protracted by its use; and nothing but a few experiments were made without any definite result, as the line was abandoned. The strike of 1888 put northern coal out of the market and forced the southern mineral into prominence. The width of the furnace bars was enlarged, so as to increase the draft, and it was very generally adopted. At the same time the cost of the former was 15*s.* 6*d.*, against 12*s.* 6*d.*, on ship's rail for the latter.

A question of much importance to capitalists is, what margin of gain is left to investors in the coal industry? The actual colliery-owners are almost unanimous in asserting that their results are far from satisfactory; that the quotations are not the figures which should be taken as the basis of calculation, inasmuch as discounts and allowances reduced the nominal price of 11*s.* per ton to about 9*s.* 6*d.*, less the hewing rate (in the north 4*s.* 2*d.* and in the south and west 2*s.* 4*d.* per ton) and exclusive of contingent expenses to the proprietor. Taking the total output of the colony, the average gross price was 8*s.* 7½*d.* per ton.

Carboniferous formations extend, it may be said, all over the colony, and comparatively but a small portion of their treasures have been extracted, so that the resources of the country have a long future awaiting them. Still, each ton of coal brought to the surface diminishes the mineral wealth of New South Wales, although its selling price may be employed for the general benefit of the colony.

The following table shows the quantity and value of coal exported and the consumption of the colony from 1858 to 1891, both inclusive.

Table showing the coal output of the colony from 1858 to 1891.

Year.	Exports.						Home consumption.	Total output.	
	To intercolonial ports.		To foreign ports.		Total.				
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.		Quantity.	Value.
	Tons.		*Tons.*		*Tons.*		*Tons.*	*Tons.*	
1858	101,488	£76,824	12,039	£12,132	113,527	£88,956	102,870	216,397	£162,162
1859	129,586	94,312	44,349	38,672	173,935	132,984	134,278	308,213	204,371
1860	140,183	104,471	93,694	79,290	233,877	183,761	134,985	368,862	226,493
1861	157,278	119,433	50,502	41,532	207,780	160,965	134,287	342,067	218,820
1862	195,427	147,019	113,355	98,403	308,782	245,422	167,740	476,522	305,234
1863	213,909	146,532	84,129	73,649	298,038	220,181	135,851	433,889	236,230
1864	283,539	146,199	88,927	66,289	372,466	212,488	176,546	549,012	270,171
1865	292,664	146,129	90,305	68,029	382,969	214,158	202,556	585,525	274,303
1866	344,194	159,175	196,711	141,413	540,905	300,588	233,333	774,238	324,049
1867	312,101	146,111	161,256	107,148	473,357	253,259	296,655	770,012	342,655
1868	329,052	155,975	218,984	136,226	548,036	292,201	406,195	954,231	417,809
1869	340,466	149,059	255,087	149,136	595,553	298,195	324,221	919,774	346,146
1870	335,564	142,656	242,825	125,025	578,389	267,681	290,175	868,564	316,836
1871	378,891	162,470	186,538	94,220	565,429	256,690	333,355	898,784	316,340
1872	394,052	170,947	275,058	136,914	669,110	307,861	343,316	1,012,426	396,198
1873	425,937	272,110	347,142	253,979	773,079	526,089	419,783	1,192,862	665,747
1874	467,583	320,119	405,442	312,128	873,035	632,247	431,587	1,304,612	790,224
1875	518,853	354,074	408,154	317,409	927,007	671,483	402,722	1,329,729	819,430
1876	542,952	372,045	325,865	253,166	868,817	625,211	451,101	1,319,918	803,300
1877	563,757	386,740	351,970	262,237	915,727	648,977	528,544	1,444,271	858,998
1878	623,323	427,954	383,097	280,452	1,006,420	708,406	569,077	1,575,497	920,936
1879	621,087	421,198	376,962	273,509	998,049	694,707	585,332	1,583,381	950,879
1880	550,672	309,004	202,684	116,295	753,356	425,299	712,824	1,466,180	615,337
1881	657,135	255,572	372,709	161,958	1,029,844	417,530	739,753	1,769,597	603,248
1882	760,226	372,334	501,319	274,699	1,261,545	647,033	847,737	2,109,282	948,965
1883	855,704	448,356	656,741	381,306	1,512,445	829,662	1,009,012	2,521,457	1,201,942
1884	994,087	532,938	696,676	398,107	1,690,763	931,045	1,058,346	2,749,100	1,303,077

1885	991,924	525,443	764,432	441,220	1,756,356	966,663	1,122,507	2,878,863	1,340,213
1886	1,027,775	544,824	708,090	402,178	1,735,865	947,002	1,094,310	2,830,175	1,303,164
1887	1,077,270	565,084	713,172	395,455	1,790,442	960,539	1,132,055	2,922,407	1,346,440
1888	1,039,764	564,293	884,108	500,179	1,983,872	1,064,472	1,279,572	3,203,444	1,455,198
1889	1,310,228	678,200	1,077,474	601,071	2,387,702	1,279,271	1,267,930	3,655,632	1,632,849
1890	1,149,544	608,108	672,330	379,065	1,821,874	987,173	1,239,002	3,060,876	1,279,089
1891	1,397,256	700,380	847,473	460,595	2,244,729	1,160,965	1,793,200	4,037,929	1,742,796
Total	19,523,471	10,726,088	12,809,599	7,833,086	32,333,070	18,559,164	20,100,757	52,433,827	24,939,649

KEROSENE SHALE.

During 1891 kerosene shale was exported from New South Wales to the extent of 34,652 tons, valued at £101,288. The total quantity produced was 40,349 tons, as against 56,010 tons in 1890. There are three localities—Katoomba, Hartley Vale, and Joadja Creek—where it is extensively worked, and it is known to exist in many other parts of the colony. Qualities differ very materially, the best being used for gas-making purposes and the remainder in the manufacture of oil, etc. For the latter the shale is placed in retorts containing about 25 cwts. each and heated, when the oil exudes in a crude state, the more volatile parts passing off as gas, which, however, is utilized. The liquid is then drained off into stills to be freed from other volatile and overinflammable matter; it is then pumped into large vertical boilers and heated in conjunction with certain chemicals and thus denuded of all impurities, the result being a pure kerosene oil, generally preferred here to the majority of the imported article. A good lubricant is also produced, and a clear, alabaster-looking wax is obtained, which is used in candle-making, besides other by-products of value. By an ingenious mechanical contrivance the 2-gallon tins in which the oil is packed are made in a couple of minutes, and the wooden cases for two tins each are also turned out by machinery. Nearly 2,000,000 gallons are imported annually from the United States, and, coming from wells and necessitating comparatively little preparation, it is placed on the market at so low a rate as to prove a formidable competitor to the native manufacturer.

With certain modifications, shale is obtained in a similar manner to coal, the wages paid per day being, on an average, as follows:

Description.	Wages.	Description.	Wages.
	s. d.		s. d. s. d.
Miners	10 0	Boys	3 0 to 4 0
Engine-drivers	8 6	Retort men	8 0
Roads men	10 0	Refiners	8 6
Laborers in mines	7 0	Laborers in works	6 6

COKE.

In the colony of New South Wales 30,310 tons of coke were made in 1891, and 76,529 tons more were imported from South Australia, presumably for the use of the Broken Hill mines, which are in close proximity to the frontier of the latter colony.

COBALT.

Near Carcoar, 184 miles west of Sydney, on the Belabula River, some lodes of manganese, cobalt, and nickel have been found on private lands, about 40 tons having been sent to Europe as a test. The nickel ore which appears among the exports of the statistical records comes here from New Caledonia for transshipment.

CHROME.

About 30 miles northwest of Grafton, 350 miles north of Sydney, deposits of chrome have been discovered, one bunch being calculated to yield 52 tons of ore for every foot of sinking and another 172 tons. Assays show from 39.7 to 55.27 per cent of sesquioxide of chromium, while any ore containing 45 per cent of chromic acid is said to be marketable in Sydney at £3 to £4 per ton, with perhaps a margin of £2 in Europe. It is estimated that the ore can be laid down here at a maximum of 35*s.* to £2 per ton, as against 30*s.*, the cost of New Caledonian chrome on the local market. Should iron and steel works be established in this colony these deposits could be profitably exported for the manufacture of chrome steel. Chrome has also been found in large quantities at Coolac, Gundagai, and in the neighborhood of the Lachlan.

COPPER.

During 1891 there were exported from this colony 3,860 tons of copper in ingots, valued at £191,878, and 665 tons in ore and regulus, with a valuation of £13,215. Of this, 344 tons came from Sunny Corner silver ore.

The Great Cobar copper mine, 497 miles west of Sydney, which formerly gave employment to some 500 people, yielded rich ore in abundance, and possesses a plant valued at £85,000, has been idle throughout 1891, due to the low prices ruling for copper. The main shaft is 660 feet in depth, the lode being there 40 feet in width; but water is very scarce, and the nearest railway station is distant 60 miles. The mining registrar reports that even when work is resumed the ore will probably be sent to Lithgow, 96 miles from Sydney, for smelting, in view of the difficulty of obtaining fuel at the mines.

The Nymagee mine, in the same district, is 57 miles nearer Sydney, employs about 250 hands, and its plant is valued at £42,000.

GOLD.

The quantity won in this colony in 1891 was 153,336 ounces, equivalent to £558,305, which could doubtless be enormously increased if any effectual and economical method of extracting all the precious metal from refractory ores be discovered. The total output, which fell gradually from 425,129 ounces, valued at £1,643,582, in 1872, as low as 87,503 ounces, valued at £317,099, in 1888, has steadily increased since that date to its present total. In all probability large quantities of gold leave the colony unnoted either in ore, matte, or bullion, as no returns are made by any of the Broken Hill mines, excepting by the Proprietary company, from whose mines alone 5,277 ounces were taken.

The following table shows, approximately, the number of miners employed in gold-mining, the quantity and value of gold won, the area of ground worked, and the value of machinery in the colony of New South Wales during 1891.

Table showing the gold output, etc., of New South Wales in 1891.

District.	Quantity of gold.			Price per ounce.
	Alluvial.	Quartz.	Total.	
	Oz. dwt. gr.	*Oz. dwt. gr.*	*Oz. dwt. gr.*	*s. d. s. d.*
Albert	3,701 17 8	5,277 0 0	8,978 17 8	75 0 to 81 0
Bathurst	3,472 9 6	14,450 14 17	17,923 3 23	50 0 to 81 6
Clarence and Richmond	506 6 17	2,714 16 18	3,221 3 11	47 0 to 77 10½
Cobar	....	2,635 11 10	2,635 11 10	77 6 to 81 8
Hunter and Macleay	....	203 0 0	203 0 0	60 0 to 77 0
Lachlan	15,404 12 8	7,089 6 1	22,493 18 9	53 0 to 80 0
Mudgee	6,761 19 20	9,241 6 5	16,003 6 1	74 0 to 80 0
New England	680 0 0	3,808 0 0	4,488 0 0	65 0 to 75 0
Peel and Uralla	2,188 8 15	37,781 6 10	39,969 15 1	67 10½ to 80 0
Tambaroora and Turon	6,060 18 14	4,276 9 14	10,337 8 4	75 6 to 80 0
Tumut and Adelong	5,214 15 6	4,425 11 8	9,640 6 14	65 0 to 82 6
Southern	5,634 0 10	8,518 5 7	14,152 5 17	68 0 to 83 9
Total	49,625 8 8	100,421 8 3	150,046 16 11	47 0 to 83 9

District.	Value of gold won.	Auriferous ground worked.	Quartz reefs proved auriferous.	Value of machinery.
	£ s. d.	*Square miles.*	*Number.*	
Albert	34,537 5 0	....	....	£5,500
Bathurst	63,352 14 3	86	59	54,846
Clarence and Richmond	10,238 1 6	607	178	10,520
Cobar	10,540 10 0	....	3	9,500
Hunter and Macleay	725 11 3	5	29	11,350
Lachlan	83,881 6 10	124	114	65,872
Mudgee	61,405 6 11	40	10	40,800
New England	15,809 10 0	288	11	62,725
Peel and Uralla	144,371 4 1	30	40	120,620
Tambaroora and Turon	40,462 4 0	72	75	27,428
Tumut and Adelong	37,225 17 2	121	118	55,630
Southern	51,447 12 1	63	109	109,605
Total	553,997 3 1	1,435	746	574,416

District.	Miners.			
	Alluvial.		Quartz (European).	Total.
	European.	Chinese.		
	Number.	*Number.*	*Number.*	*Number.*
Albert	350	....	17	367
Bathurst	422	44	634	1,100
Clarence and Richmond	108	....	335	443
Cobar	....	....	112	112
Hunter and Macleay	12	....	146	158
Lachlan	753	....	635	1,388
Mudgee	686	287	111	1,084
New England	80	14	208	302
Peel and Uralla	330	54	1,902	2,286
Tambaroora and Turon	319	118	250	687
Tumut and Adelong	404	45	300	749
Southern	576	146	1,768	2,490
Total	4,040	708	6,418	11,166

In consequence of nonobservance of labor conditions or of nonpayment of rent, a considerable number of leases were canceled in 1891; so that the area of land held under mining leases at the end of that year shows a decrease when compared with 1890, 844 gold leases, covering an area of 4,400 acres, having been forfeited.

Three persons lost their lives in auriferous quartz and four in alluvial gold mining; fourteen were injured while pursuing the former avocation.

The no-liability mining act has contributed not a little to companies being floated and registered with a large paper, but no really subscribed, capital, the latter condition not being made a *sine qua non* by law. It often happens, consequently, that calls can not be collected, nor can the original speculators carry on, and collapse follows. Many mines have been abandoned from this and similar causes, such as unskillful management, want of proper appliances, etc. But nowadays cheaper and more efficient gold and labor-saving mining machinery is continually coming into the market, and mines formerly thought worthless may ere long attract renewed attention and be worked to advantage. It has been suggested by Mr. James Barker, police magistrate and warden of the Lachlan, Tumut, and Adelong mining districts, that in this connection a code of regulations should be drawn up, rendering it obligatory that these old mines should be kept open for further development by preserving the shafts and drives, for which purpose the timbers, which in many cases are not worth more than £50 when brought to the surface, must be left in situ. Maps and plans showing the localities of these shafts, their respective depths, the underground workings, etc., should also be furnished. It is also alleged that the existing mining regulations have no power to enforce certain of their rules, more especially those respecting the forfeiture of ordinary tenements held thereunder for non-working. It is asserted that they protect the mining loafer, who waits for the industry of others to afford him an opportunity of profiting by their honest endeavors. However, these questions must be left to the able authorities who govern this industry, and I merely note these opinions as those current among many of the mining population and by them considered to require legislative revision.

IRON.

No iron is at present made in New South Wales from ore, although large deposits of iron, flux, and fuel are available. Scrap iron is used for this purpose to the extent of an outturn in 1891 of 4,126 tons, valued at £36,101.

Strenuous endeavors have been made to form a company in England to work very rich iron deposits in the southern district, so far unsuccessfully, due in a great measure to that want of confidence which has been engendered by the late strikes.

The chief iron-ore deposits of the colony are found at Mittagong and Picton, 77 and 53 miles, respectively, south of Sydney, on the Great Southern Railway line, and near Wallerawang and Rylstone, the former 105 and the latter 158 miles west of the metropolis, on the Great Western Railway. In the immediate neighborhood of these four localities workable seams of coal suitable for iron-smelting and unlimited supplies of good limestone abound, so that better sites for the establishment of smelting works can not easily be found. It is estimated by Mr. T. W. E. David, B. A., F. G. S., Government geological surveyor, that 2,872,000 tons of brown hematite, analyzing 48.4 per cent of metallic iron, are in sight in the Mittagong district, and within 40 to 100 miles by rail further deposits are roughly set down as 4,000,000 tons. Those 8 miles out of Picton are also brown hematite, and one estate is calculated by the before-cited authority to contain 562,590 tons, with 799,470 tons on that adjoining.

Brown hematite from near Picton assayed as follows: Moisture at 100° C., 1.77 per cent; combined water, 11.88 per cent; ferric oxide, 71.55 per cent (equal to metallic iron 50 per cent, insoluble in acids 5 per cent); ferrous oxide, trace; manganous oxide, trace; alumina, 10.35 per cent; lime, *nil;* magnesia, 0.25 per cent; silica, 4.1 per cent; sulphuric oxide, trace; phosphoric oxide, trace.

The total quantity of iron ore in sight for smelting purposes is 8,234,060 tons, inclusive of the 4,000,000 tons of brown hematite deposits of the Goulburn and adjacent districts, which are lodes, not spring deposits.

About Wallerawang the lodes have been but superficially exploited, and only an approximate estimate can be formed of the quantity of ore they contain—say 400,000 tons at a depth of 50 feet. Although this by itself would not be sufficient to warrant the establishment of smelting works, deposits of rich brown hematite and magnetite occur within moderate distances of the railway, three of the largest being calculated to contain 1,080,000 tons of ore in sight, yielding from 50.65 to 58.06 per cent of metallic iron, free from sulphur and with only a trace of phosphorous. As the other deposits do not contain more than 1,000,000 tons of ore in sight, the total available for smelting purposes in the Wallerawang district may be put down, approximately, as 2,480,000 tons.

LIMESTONE.

Limestone is found in many localities in this colony as crystalline white marble, calcite, argillaceous, dolomitic, calcareous, gray, or earthy descriptions of mineral. From the Tarrawingee quarries 74,057 tons were sold for flux at a trifle under 18*s*. per ton.

MERCURY.

Mercury, for which only six assays were made during 1891, yielded *nil* in three cases, and three gave, respectively, 0.01, 22.4, and 11.77 per cent.

In May, 1891, cinnabar was found in a lode deposit near Bengara, about 350 miles north of Sydney; in alluvial form it had been known to exist many years previously. Two shafts have been sunk, one to a depth of 40 feet, the other to 25 feet, united at that level by a drive. The lower part of the former was sunk in clay stone, which forms the under surface of the deposit; it has no true walls, being a dyke of decomposed, serpentinous rock, without any true fissures or clay flucan. The cinnabar is distributed through the mass in small spots from the size of a pin's head to that of a pistol bullet. No bulk tests have been made to give reliable data, but three assays showed 0.63, 0.65, and 0.01 per cent of metallic mercury in a hundredth part, respectively. Estimating the market price of cinnabar at £157 per ton, the value per ton of that contained in this dyke stone, as per the three assays, would be 19*s.* 8*d.*, 20*s.* 5*d.*, and 3¾*d.*; so that it would not pay working expenses, unless concentrated by some cheap process.

PRECIOUS STONES.

Diamonds to the extent of 1,200 carats have been won at Tingha and at Inverell, 390 and 440 miles, respectively, north of Sydney.

About 25,000 carats of emeralds have been raised by the Emerald Proprietary Company in the Emmaville division of the New England district, 460 miles to the north, the lode being some 2 feet wide, on which two shafts have been sunk to a depth of 100 and of 50 feet, respectively.

The price reported to have been offered for a cut gem weighing 5 carats is £30, and £2 per carat for all cut stones from this mine.

At the opal mines of the Wilcania division, 700 miles west of Sydney, but little progress has been made, consequent on the scarcity of water.

PIGMENT.

At Larras Lake, near Molong, 216 miles west of Sydney, a deposit of pigment, said to be 5 feet in width and free from grit, is being worked; but the mills are not yet started in Sydney. Four leases are being exploited for ocher in the Dubbo district, 280 miles west of this city.

PLATINUM.

Platinum has been found at Broken Hill in concentrates assaying from 9 pennyweights 18 grains to 16 pennyweights 7 grains per ton, and in the Richmond district, some 40 miles distant, concentrated beach sand has yielded 4.3 per cent of platinum and 15.38 per cent of tin.

SILVER AND LEAD.

While no previous year can rival 1891 for the export of silver and lead, leading as it does that of 1890 by £187,035, yet (as I observed when speaking of gold) no doubt can be entertained that the output of the silver mines of this colony could be very largely increased were a thorough knowledge attained of the proper processes for treating every variety of argentiferous ore. So far, however, no inventor has arrived at this desirable result.

The "Lührig" system was applied to a small quantity (about 10 tons) of ore of a nearly white siliceous and feldspathic rock, the lighter portion being apparently worthless. The whole bulk was concentrated and gave the following: Jigger concentrates, 57 per cent of lead and 0.74 per cent of silver (241 ounces, 0.002 per cent per ton); vanner concentrates, 55 per cent of lead and 0.73 per cent of silver (238 ounces, 0.00025 per cent per ton). The final tailings showed only traces of metals. Assays in London showed 1.37 per cent of lead, 43 ounces 5 pennyweights of silver, and 2 pennyweights of gold to the ton, while at Scharfenberg the assay was 1.5 per cent of lead, 39 ounces 4 pennyweights of silver, and traces of gold to the ton. I may remark that a 100-ton plant of this system has been ordered by a New Zealand company.

At the Sunny Corner, in the Mitchell division of the Bathurst district, 35,287 tons of ore were raised in 1891, of which 10,847 tons remained at grass calcined and valued at £7,300, while 39,046 tons were smelted for 404,006 ounces of silver, 4,048 ounces of gold, 344 tons of copper, and 25 tons of lead, the total value of which was £104,565. The Commodore Vanderbilt Company, in the Tumut and Adelong district, raised 5,657 tons of ore, which gave 745 tons of matte, producing 63,750 ounces of silver, 802 ounces of gold, and 86 tons of lead, while from 86½ tons of silver-lead 23,096 ounces of silver and 1,275 ounces of gold were obtained. The Moruya Gold and Silver Mining Company, some 240 miles south of Sydney, has sent about 400 tons of ore to London and Sydney for treatment, the average price realized here being £9 per ton. In the Inverell and Glen Innes districts silver ore has been found in many localities, but the lodes contain either sulphides or such refractory ores as are too difficult of treatment for the means of the owners. In the latter division, however, one mine obtained 354 tons of concentrates assaying 85 ounces of silver to the ton. At Broken Hill an eminent German metallurgist has been for some time past engaged in experimenting on sulphide ores, but hitherto has not succeeded in discovering such a cheap and efficient mode of treatment as will enable the now nonremunerative mines to show a profit if worked.

During the year 471,101 tons of ore, valued at £3,960,677, were raised at Broken Hill* and in the Silverton district, the export of metals being as follows:

Metal.	Quantity.	Value.
Silver-lead:	*Tons.*	
Bullion	54,722	£2,539,685
Ore	93,942	985,403
Copper ore	203	3,955
Total	148,867	3,529,043

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* One of those great calamities, which of late have so frequently proved ruinous alike to employer and employed, has fallen on Broken Hill. In this connection it may be of interest to state that for the 20,000,000 ounces of silver produced by the colony £2,150,000 were expended in wages alone, with perhaps £1,000,000 as profit to the speculators.

The number of miners employed in the first-named division was about 5,650 and 850 in the second, where the value of the machinery was estimated at £89,316 and at £445,848 in Broken Hill. The following table shows the net profits:

Name of mine.	Half year ending—	Silver yield, fine.	Net profits.	Profit per ounce, standard.
		Ounces.		*s. d.*
Proprietary	May 31	5,725,135	£522,783	1 8
Central	Dec. 31	899,239	75,500	1 6½
Block 14	March 31	1,228,433	42,182	0 8
Block 10	March 31	1,677,290	200,268	2 2
South	Dec. 31	369,039	10,230	0 6½
Total	....	9,899,136	850,963	1 7

By setting these net profits against the yield of silver, some estimate may be formed of the result of the fall which has taken place in the price of silver. In the case of the Proprietary mine the profit earned was from November 1 to May 31, when silver stood at 3*s.* 5½*d.* per standard ounce; that of Block 14 and Block 10 between September and March, with silver at 3*s.* 6½*d.*; that of the Central and South mines between June 30 and December 31, when it stood at 3*s.* 9*d.* per ounce. Therefore, if £850,963 be taken as the net profit on 9,899,136 ounces of 925-fine silver, when the price averaged somewhat over 3*s.* 7*d.* per ounce, a fall of 4*d.* per ounce would reduce said profits by about one-fifth.

TIN.

The alluvial deposits of the older fields of this colony are in a great measure exhausted, nor have new discoveries been tested at date. The output of 1891 was less both in quantity and value than that of any year since 1872. It was smaller than the quantity produced in 1890 by 227 tons and by £58,429 in value. In the Swamp Oak division of the Peel and Uralla districts, some 300 miles north of Sydney, tin is the leading mining interest, and in the Emmaville portion of the New England district, 450 miles in the same direction, an area of about 30 miles in length by 20 miles in breadth is nearly all tin bearing. Although a find of block tin near Rolland's Plains, 270 miles north of Sydney, in the Macquarie district, led to some successful prospecting toward the end of last year, nothing of any consequence has as yet been done on the field.

The export for 1891 was somewhat less than that of 1890, being 3,409 tons of ingots, valued at £317,117, and 259 tons of ore, representing £12,724, for the latter year, and 2,941 tons (£261,769) in ingots, with 203 tons (£9,643) of ore, for 1891, a total decrease of 227 tons and £58,429.

Two thousand one hundred and fifty-three miners found employment in tin-mining in 1891, while the sum invested in machinery was £32,700.

WOLFRAMITE.

Eight assays of this mineral were made last year, with the following results:

Locality.	Description of mineral.	Tungstic acid.
		Per cent.
Berredale-Cooma, 278 miles south of Sydney	Wolframite, with a little quartz	69.19
Burrowa, 226 miles south of Sydney	Scheelite	31.65
Bundarra, 370 miles north of Sydney	Quartz, with wolframite and arsenide of iron	44.94
Cooma, 202 miles south of Sydney	Wolframite	54.93
Frogmore, 223 miles south of Sydney	Wolframite in quartz and mica gangue	45.44
New England district	Wolframite, with a little mispickel	64
New England gulf	Wolframite in quartz	51.21
Mount Hope, 494 miles west of Sydney	do	62.57

No permanent deposit of wolframite has as yet been discovered, although great anxiety has been evinced in the search for that metal.

ZINC.

Zinc assayed in 1891 came from Emmaville, 495 miles north of Sydney; from Bungarra, 120 miles south of Sydney; and from the Inverell district. The assays gave the following results: Emmaville, 17.62 per cent of metallic zinc and 20 ounces 2 pennyweights 21 grains of silver per ton; Bungarra, 9.71 per cent of zinc and 25 ounces 5 pennyweights 5 grains of silver; and Inverell, 2.71 per cent of zinc and 80 ounces 16 grains of silver.

CONCLUSION.

It has been suggested that some changes are desirable in the mining laws of this colony. The regulations with regard to the forfeiture of ordinary mining tenements for nonperformance of work can not be enforced. Nor will miners prosecute under section 126 to enforce the working of a claim, as what they want is, not that the penalty of £10 should be inflicted, but that they, who are willing to work, should have the rights to the abandoned ground. It would appear, also, that the wardens have such large districts to supervise that they can not properly inspect the mines and report those cases in which the conditions of the leases have not been complied with. This, it is urged, might be remedied by insisting upon lessees furnishing the mines department with a full declaration of their operations at the end of each month, subject to certain penalties for noncompliance.

In conclusion, I transfer to this report from the government departmental returns of 1891 the following table, showing the quantity and value of the mineral products of New South Wales. I regret that circumstances have prevented my entering into those details and descriptions with which I originally proposed to season this document, in the hope of making it somewhat palatable to those readers not in search of statistical information alone.

Table showing the quantity and value of the mineral products of New South Wales.

Minerals.		Quantity.	Value.		
			£	s.	d.
Alunite	tons	704	1,888	0	0
Antimony	do	914.85	22,057	0	0
Ballast stone	do	619	713	0	0
Bismuth	do	0.4	500	0	0
Building stone	number	4,735	5,025	0	0
Coal	tons	4,037,928.3	1,742,795	12	6
Cobalt	do	1.15	470	0	0
Coke	do	30,310.35	34,473	5	10
Copper			6,023,431	0	0
Fire clay	tons	16.8	55	0	0
Gold	ounces	153,335.62	558,305	12	3
Grindstones	number	471	311	0	0
Iron made in country	tons	4,125.81	36,101	0	3
Lead, pig	do	190.65	2,025	0	0
Lime	do	410	958	0	0
Limestone, flux	do	74,057	65,357	6	2
Manganese	do	138.2	340	0	0
Marble	packages	635	2,577	0	0
Oxide of iron and pig iron	tons	228.75	434	0	0
Shale	do	40,349	78,160	0	0
Silver, silver-lead, etc			11,302,095	0	0
Slates	number	31,234	351	0	0
Tin			9,526,796	0	0
Zinc	tons	218.60	2,622	0	0
Sundry minerals			3,217	0	0
Total			29,411,057	17	0

ALEXANDER CAMERON,
Vice-Consul.

UNITED STATES CONSULATE,
Sydney, September 16, 1892.

AUSTRALASIAN MINERAL PRODUCTS.

SUPPLEMENTARY REPORT BY VICE-CONSUL CAMERON, OF SYDNEY.[*]

GOLD.

VICTORIA.

The quantity of gold raised in the colony of Victoria in 1891 was 576,399 ounces, a decrease of 12,161 ounces as compared with the previous year's record. Of the above, 387,852 ounces were from quartz and 188,547 ounces from alluvial sources, being an increase in the former and a decrease in the latter branch of this industry. There were exported 93,114 ounces of the gold produced in Victoria, besides specie from all sources to the value of £2,217,734. The deepest mine was down 2,448 feet at the end of 1891, being Lansell's 180 mine, Sandhurst. Nine others varied from 2,448 to

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[*] This supplementary report was abstracted from Vice-Consul Cameron's report on the mineral products of New South Wales, with which it was incorporated.

2,180 feet. Dividends were paid to the total amount of £515,946, being an increase of £11,470 over the previous year. Thirteen thousand and six miners worked in quartz and 10,520 in alluvial, including 2,433 Chinese in the latter and 157 in the former pursuit. The average number of gold-mining accidents was 3.114 per thousand, 15 which occurred in quartz and 6 in alluvial workings resulting fatally.

TASMANIA.

Due to operations having been suspended at the principal mine at Beaconsfield, pending the creation of more extensive pumping appliances, the yield of gold in Tasmania fell from 29,240 ounces in 1889–'90 to 20,000 ounces in 1890–'91. Gold-mining operations generally are reported as having been of a limited character throughout that colony, although a good deal of prospecting has been done, which will possibly lead to future developments. Up to the 30th of June last 3,133 persons were occupied in mining, but no records are available to show the different minerals in the winning of which they were engaged.

WESTERN AUSTRALIA.

Gold has been found in many parts of Western Australia. On the Ashburton River 15,000 ounces have been raised in about six months from alluvial deposits in the auriferous belt of country some 150 miles along this river in a southeast direction, the whole area being about 10,000 square miles.

In the northwest of the colony, lying between the coast on the north, the Fortescue River on the south, and the DeGrey River and the Great Sandy Tableland on the east, a proclaimed area of 32,000 square miles is situated, known as the Pilbarra gold field. It is a large, low, alluvial plain following the coast line, and gives great promise for the future.

The reefs of Mallina, 70 miles east of Rorbourne, have been abandoned, pending the result of neighboring workings. A battery erected a little to the northeast of the above has made some trial crushings of stone from the Lady Carrington claim, when it was found to be nearly pure sulphide of antimony rich in gold, the first-named metal being all lost in the process. It is contemplated to concentrate the pulverized ore and send it elsewhere for such treatment as will not only save the antimony, but also increase the return of gold, as none would be carried away in the tailings.

All the claims taken up at Perawah, some 5 miles further to the east, have been neglected for the superior attractions of recent alluvial finds.

On the Equina field, to the east of the above, a good extent of alluvial diggings still remains to be worked, but water is scarce.

Twelve miles to the southeast of the foregoing, near the Yule River, is an alluvial field called Pilbarra, about 2 miles in width. Reefs also exist in the district, but are too patchy to be promising.

Nullagine is situated on a branch of the DeGrey River of the same name, and three classes of alluvial claims are there found, viz, the alluvium of existing creeks, that of older creek beds in conjunction with present streams, and old deposits. All three are very rich, but so much gold leaves the colony unrecorded that no accurate returns are available.

The Nicol, on a small river of that name, is nearly deserted, the surface diggings being exhausted and no reefs having been discovered, although it is believed that the deep ground carries gold.

Six crushing plants have been erected on the Yilgarn gold field, the reefs being in general satisfactory, with an average yield of over an ounce per ton.

On the Kimberley 4,336 tons of stone have been crushed for 4,260 ounces.

QUEENSLAND.

In Queensland during 1891 the output of gold was 16,021 ounces of alluvial and 560,418 ounces of quartz—a total of 576,439 ounces, against 610,587 in the previous year, the largest return since 1877 being that of 1889, viz, 739,103 ounces. The deficit in 1891—say 34,148 ounces—is to be charged to the decreased production of Mount Morgan. Of the total for that year, 551,149 ounces are stated to have been exported. The miners who found employment were as follows: Europeans, 7,783 in quartz and 844 in alluvial; Chinese, 568 in alluvial. This is an increase of 142 Europeans and 44 Chinese. The extent of ground worked on covered an area of 14,009 square miles.

The prospects of the Charters Towers gold field, the most important of the colony, are reported as promising for the future, much fresh capital having been invested and deep sinking having proved eminently successful. Shafts of over 2,000 feet in depth are in contemplation.

Croydon holds its usual place as regards gold-field rank, but the continuous rains of the first third of the year made carting quartz to the crushing mills a matter of impossibility. The railway in course of construction will doubtless facilitate transport and tend to the settlement of a large mining population on this field.

The veteran Gympie region has fallen off during the period under observation. Some of the chief mines show signs of decline, and new discoveries have not, so far, taken their place.

Nor has the Etheridge, the largest gold field of the colony, advanced as might have been expected in view of its resources. Large sums have been expended by many of the foreign companies who hold the big mines with but small results, due, the warden points out, to extravagance and bad management.

Ravenswood suffers from the refractory character of its ores, which have still to be sent to distant works for treatment at heavy expense, although local metallurgical works have been established.

The Palmer shows a slight increase over 1890; but, as all the alluvial mining is done by Chinese, it is impossible to obtain correct returns.

At Eidsoold the prospects for the future are good, but the field has not yet been properly prospected for depth, so that the results of deep sinking are not yet known.

Alluvial mining only has been done on the Clermont during the past year, the results being satisfactory. Many of the miners, however, work only when other employment is scarce or when water for washing operations is plentiful. The field gives no indications of where gold is likely to be found, so that beginners and old hands run an equal chance.

The Russell was the pioneer field of hydraulic sluicing, but no reliable statistics are available respecting these operations.

The question for the Gladstone, where there are large deposits of low-grade auriferous ores, is one of profitable or nonremunerative treatment. The former, it would seem, is well within the range of possibility, as in one instance about 1,700 tons have been reduced for 3 pennyweights per ton, and similar operations are still going on.

The sale of a perfectly valueless mine at Cloncurry will most probably deter bona fide investors from embarking capital in this direction, although good mines undoubtedly exist there. In the meantime the alluvial workings have given fair returns during the year.

In the Gayndah division, where there are a number of small gold fields, the Paradise alone shows a fair record, except at Mount Biggenden, where good work has been done.

Matters have been very depressed at the Hodgkinson; but no fair test has as yet been made of the field, and a prolonged drought has hampered the working of the mills.

Fossicking only has been going on at the Cape River gold field. The reefs can not be developed, as there are no local crushing mills, the ore having to be sent to Charters Towers for treatment.

Only one new reef has been discovered at the Normanby; and only a few hundred tons, averaging 19 pennyweights, have been treated.

All the gold of the Rockhampton district is the yield of the Mount Morgan, some 4,000 ounces excepted. This auriferous deposit is attributed to geyser origin, the result, in short, of thermal aqueous solutions, the mount consisting of highly metamorphosed sedimentary rocks, considered to be of the lower Permo-Carboniferous age. Chemical reaction has taken place in the aluminous rocks, which are largely impregnated with sulphate of alumina, and in the masses of basic sulphate of iron, the latter having yielded as much as 24.419 per cent of sulphuric anhydride, which could be advantageously utilized for the manufacture of sulphuric acid. During the twelve months ending May 31 last 124,290 ounces of gold were extracted from the 59,788 tons of stone treated at Mount Morgan, while £300,000 were distributed in dividends. The assayer of the Sydney mint states that the natural purity of the Mount Morgan gold is unequaled.

NEW ZEALAND.

In New Zealand the yield of gold for 1891 is the lowest hitherto recorded, chiefly owing to the suspension of hydraulic sluicing consequent on an extremely dry season. Up to the 31st of March, the end of the New Zealand statistical year, 171,080 ounces, valued at £685,321, had been entered during the previous twelve months for exportation, as against 201,760 ounces and £803,174 for the same period of 1889–'90, a decrease of 30,680 ounces and £117,853.

Of a total of 13,032 miners who worked in the year 1890–'91 there were 7,729 European and 2,995 Chinese alluvial diggers, while 2,308 of the former were quartz miners.

On the North Island no alluvial diggings exist, the quartz alone being carried on.

The lodes of the Puhipuhi field have not been properly tested, although the prospects are promising. The gold of the Kuaotuma field is so minute and so finely disseminated throughout the stone that not more than 40 per cent is saved by the ordinary battery process, so that the tailings, if properly treated, must be of considerable value. One company, however, secured 5,077 ounces from 3,083 tons of stone.

Of the two English companies established at Coromandel one has been pretty successful, the other not having met with a payable lode; nor are the other four local companies reported to be doing much.

The Thames is the largest field in the Hauraki Peninsula, and furnishes the means of livelihood to a large population. The Saxon mine, the deepest, is worked from the 470-foot level, with good payable stone under foot. This mine, with a paid-up capital of £4,033, has distributed £15,417 in dividends; the Waiotahi, whose capital is £15,000, has returned £24,000, and the Cambria £79,357 with a paid-up capital of only £1,181.

The largest lode as yet worked in the colony is that of the Martha mine, at Waihi, it being 45 feet in width in places, containing fairly good ore throughout.

Owing to their not leaving a portion of their capital for prospecting the mine, the syndicate that bought the Waiorongomai properties at Te Aroha had to sacrifice them after spending about £60,000 on the purchase and additions to the plant. It is expected, however, that the Te Aroha will yet prove a large mining district.

None of the quartz from Mahakipawa has so far been tested in bulk; but good prospects are said to have been got, and it is considered a valuable property.

The Reefton district has made good progress during 1890–'91, as the returns show an excess of 5,567 ounces, valued at £22,322 over the previous year; while £27,325 were paid in dividends, against £18,250.

The quartz mines of Otago have not fulfilled expectations, some having proved a total failure; but outcrops only have been worked, and the lodes have not been tested to any depth.

Alluvial mining is restricted to the Middle Island, most of the auriferous drifts being worked by hydraulic sluicing.

On the Mahakipawa flat, as well as near Rimee and at Ross, auriferous wash drifts have been worked to advantage during the past year; while in

South Westland, although but little prospecting has been done inland, large quantities of gold have been won from the ocean beaches. All the rivers in the vicinity bring down gold, indicating its presence in the interior, which has not yet been properly explored, on account of the precipitous nature of the country rendering access excessively difficult. Where the fall necessary to sluice low-lying lands can not be had, the system in vogue for many years in California has been adopted.

The Kumara gold field, on the west coast, has given employment in hydraulic mining to an average of 600 men during the past fifteen years, some 550 acres of the total area of 2,100 acres having been partly worked, resulting in an output of £1,100,000. There are other similar fields, but none where so large a working population is to be found.

Some thirty years have elapsed since the first discovery of gold in Otago, but it was only some time after the hydraulic elevating system was first introduced—some nine years ago—that it occurred to mining experts that the Clutha Valley could be similarly treated; now some £21,000 have been spent in works and hydraulic plant, and the Island Block Company has very fair prospects of good returns for their outlay. Other companies are following in their wake, and it is believed that all will prove remunerative.

A system of dredging has been adopted in New Zealand for working ocean beaches, river beds, and low-lying flats with shallow depths. Many different kinds of dredges are in use, the center bucket being perhaps the favorite for gravel flats and river beds; but they are all so deficient in washing appliances that only a small percentage of the gold is recoverable.

In compliance with the mining companies act of 1886, gold-mining companies are obliged to publish a statement of their affairs, from which it appears that the total of their subscribed capital is £2,024,149, of which the value of scrip given gratis to shareholders is £819,533. The actual cash paid up is £496,754, and dividends have been paid to the amount of £593,066. In these calculations £72,779 are included, being the capital paid up in dredging companies, which have but lately commenced operations and have so far made no returns.

TIN.

QUEENSLAND.

In Queensland the total quantity of tin raised during 1891 by 984 miners was 2,236 tons, valued at £116,387, being 734 tons in quantity and £38,576 in value less than the product of 1890. In the Herberton district both lode and stream operations have been restricted, owing to scarcity of water for winning the latter and to the poverty of the ore raised. The same remarks apply to the Cooktown district. At Stanthorpe, where most of the tin comes from private lands, the output has fallen off some 33 tons. The tin of the Mount Brown deposits is mixed with a small quantity of bismuth, rendering the ore unsalable in the colony. Good reports have been sent to the mines department by prospectors for tin in the Etheridge district.

NEW ZEALAND.

About two years since some supposed rich discoveries of this ore were made at Stewart Island, New Zealand, but they have not proved to be as anticipated, the ore not having been found in quantities sufficient to pay working expenses, apart from the difficulties arising from the scarcity of water.

VICTORIA.

Of tin ore, 1,778 tons, valued at £5,092, were produced during 1891 in Victoria, affording work to 163 miners, the total yield being 869 tons larger than that of 1890. The movement of this metal was represented by an export of 18 tons of block tin, valued at £1,701, and 13 tons of ore, valued at £650, against an import the previous year of 173 tons of the former, valued at £14,546, and 6 tons of the latter, standing for £5. An area of about 12,000 acres was leased for tin-working, chiefly in the Gippsland and Beechworth districts. At Mount Wills the Government is extending every aid to develop the surrounding tin-bearing country.

TASMANIA.

From Tasmania 1,561 tons of tin, valued at £139,364, were exported during the first half year of 1891, the total for the previous year having been 3,209 tons, valued at £296,368, when the tin-mining companies paid taxes on dividends amounting to £87,187.

WESTERN AUSTRALIA.

The Greenbushes tin field of Western Australia has progressed steadily; but very few areas are now being worked, although on some the wash has been very rich, yielding as much as 15 pounds to the dish.

TIN SOURCES.

The chief sources whence Great Britain draws her supplies of tin, apart from her Cornwall mines, are Australasia and the Straits, the former having contributed to the value of £569,264 during 1890. Tasmania held the premier place with 38.6, New South Wales 31.5, Queensland 27.2, South Australia 1.1, Western Australia 1.1, and Victoria 0.6 per cent of the total, the price at the commentement of the current year having been £90 10*s.* per ton on the London market. It has been down to £72 in 1884, and, owing to the operations of a French syndicate, it rose to its highest price, £168, in 1887. During the first seven months of 1892 the value of tin plates and sheets sent by Great Britain to the United States was £2,255,000, as against £2,622,000 during a like period of 1890; but allowance must be made for the glutting of the market during the first seven months of 1891, consequent on the anxiety to hurry all that could be got into the United States before the new tariff came into operation. It is asserted by some that the United States only manufacture 1 per cent of their consumption of tin plates, and that, in spite of a duty of 2.2 cents per pound, the demand for Welsh plate is firm. Tin ore is usually sold here at the day's quotation for the unit, the pro forma calculation being: Assay 72.5×15*s.*, the price per unit=£54 7*s.* 6*d.*, the price to be paid per ton of ore.

QUICKSILVER IN QUEENSLAND.

In Queensland a certain amount of quicksilver from the cinnabar freeholds near Kilkivan was put on the market at the commencement of 1891; but operations have been suspended, owing to the low prices ruling for this metal.

SILVER.

QUEENSLAND.

During 1891 the silver ore raised in Queensland only appears for 875 tons, valued at £21,879, against 1,913 tons and £56,639 in 1890. This falling off is most conspicuous in the Herberton district, attributable chiefly to the closing of the smelting works at Montalbion; but shipments of ore are still going on to England, in spite of the heavy cost of transit. In the Ravenswood district the costly and extensive machinery of the Ravenswood Silver Mines Company is at a standstill, and the lodes at Kangaroo Hills and Argentine are awaiting capital for their development.

VICTORIA.

From Victoria 13 tons of silver ore, valued at £130, and 10 tons of silver and lead, worth £80, represented the exported product of 1891, while the following table shows the movement of these minerals for that year:

Description.	Silver.		Silver and lead.		Ore.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Ounces.		*Tons.*		*Tons.*	
Imports	4,159	£891	....	....	27	£469
Exports	1,032	214	37	£880	21	430
Excess of imports	3,127	677	....	....	6	39
Excess of exports	....	....	37	880	....	....

TASMANIA.

In Tasmania the area leased and applied for up to the 30th of June, 1891, for silver ore was 119,000 acres. The discoveries of silver at Zeehan and Dundas are reported as being of vast extent and richness. The development of most of the silver deposits must necessarily be a work of time, as they are situated in a wild, trackless, mountainous country, subject to a very heavy rainfall; but the above-mentioned fields are accessible by a railway which is approaching completion.

NEW ZEALAND.

As regards New Zealand, no really correct statistics relating to silver production are to be had, on account of so many shipments being made in bullion. Silver-mining, however, is yearly attracting more attention, and numerous plants are in the course of erection for the treatment of argentiferous ores. At present they are only worked at Puhipuhi, where the greater part of the bullion is silver, and at Karangahake, where the ore contains gold and silver in combination.

COPPER.

QUEENSLAND.

In Queensland the copper industry of the Cloncurry district is reported as being at a complete standstill, owing to the stagnant condition of the market and the want of cheap transit to port.

VICTORIA.

The condition of this mineral product in Victoria is indicated by the fact that the quantity of that ore raised in 1891 was only 60 tons, valued at £216.

PRECIOUS STONES.

VICTORIA.

In Victoria two leases were in force on the 31st of December last, covering an area of 82 acres, for turquoise workings; but I have no statistical information as to results.

QUEENSLAND.

In the Clermont mining district of Queensland some prospectors are reported to have been working for sapphires.

COAL.

VICTORIA.

In Victoria 22,834 tons of coal were raised in 1891, valued at £19,731, and 6,322 tons of lignite, valued at £1,673, affording employment to 260 miners. During the same period the import amounted to 732,185 tons, valued at £728,923. Bores have been put down to the number of eighteen, in one instance to a depth of 2,854 feet, at a cost for labor, etc., of £6,179, exclusive of £1,301 for wear and tear of diamonds. The secretary for mines does not write with any amount of confidence as to the prospect of Victoria meeting her own coal requirements, but states that—

> This can only be estimated by systematic enterprise in the expenditure of capital having for its object the development of the seams discovered.

Victorian produced coal costs 19*s.* per ton, against 14*s.* 5*d.* for imported Newcastle, the latter doing more work. Yet during the period from January 1 to July 31 of this year (1892) the railway department has used some 12,000 tons of the former, which amounts to a government subsidy of 4*s*. 7*d*. per ton in favor of the local industry. How far this system of "bolstering" is advisable I do not care to discuss in this paper.

TASMANIA.

Steam coal of excellent quality is found in Tasmania, where it is now an established industry, the output of the year 1890 having been 50,519 tons, valued at £45,467. A great deal of prospecting by boring, etc., has been carried on. During the first half of 1891 there were raised 21,870 tons, valued at £19,680. Tasmania contributes to the total of coal imports into Victoria, but I have no statistics from the former colony to show to what extent this trade attained in 1891. Anthracite is also found in the island.

WESTERN AUSTRALIA.

In Western Australia some recent discoveries of coal have been made a short distance from the port of Bunbury. The seams are reported as being sufficiently good to encourage further explorations. The coal is useless for gas-making, being noncoking. Four samples assayed as follows:

Description.	No. 1.	No. 2.	No. 3.	No. 4.
Volatile:	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Water	15.2	10.87	11.7	12.75
Gases, etc	32.46	31.47	21.83	37.04
Sulphur	2.23	2.23	2.99	0.71
Coke:				
Fixed carbon	45.03	52.87	54.17	46.7
Ash	5.08	2.56	9.31	2.8

No. 1 was from the bed of the River Collie, No. 2 from a depth of 17 feet, No. 3 from a 3-foot-thick seam, and No. 4 from a shaft 5 miles further east.

It is clean to handle, solid, travels well without forming much dust and smalls, and is very suitable for furnaces with a sharp draft, as it neither clinkers nor slags; the quantity of ash is small, and it gives off little smoke.

QUEENSLAND.

Due to the strike of 1890, the output of coal in Queensland rose to 338,344 tons, valued at £157,072; but in the following year it receded to 271,702 tons, estimated as worth £128,907 at the pits, equivalent to an increase 1¾*d*. per ton. The smaller production is due to slackness in the Ipswich and Wide Bay coal fields and to the general labor troubles which have contributed to cramp this industry. Some fifty men are employed in other districts, apparently in prospecting only, as no returns of coal actually raised are available, although discoveries of the mineral are reported as being of excellent quality and thickness. The total number of men employed during 1891 was about 1,000. Only four accidents occurred, none of them fatal. The Queensland government employs a mineralogical lecturer, who is engaged in reporting on the various geological conditions of different districts—lecturing, preparing specimens, etc.

NEW ZEALAND.

In New Zealand 123 coal mines were worked during 1890, employing 1,846 men. The quantity and value of coal imported and exported during that period were as follows:

IMPORTS.

From—	Quantity.	Value.
	Tons.	
United Kingdom	4,621	£4,629
Victoria	750	555
New South Wales	100,421	92,238
Queensland	5,147	4,744
Total	110,939	102,166

EXPORTS.

To—	Quantity.	Value.
	Tons.	
United Kingdom	42,984	£47,824
Victoria	635	502
New South Wales	11,155	10,700
Queensland	151	99
South Australia	6,814	3,532
Norfolk Island	12	16
Fiji	6,554	4,853
United States (east coast)	3	4
New Caledonia	117	87
South Sea Island	7,963	7,311
Total	76,388	74,928

From the total exports should be deducted New Zealand products, composed of imports as follows:

From—	Quantity.	Value.
	Tons.	
New South Wales	3,980	£4,735
Fiji	124	124
South Sea Islands	2,670	3,066
Total	6,774	7,925

This would leave the total exports at 69,614 tons, valued at £67,003.

The total quantity raised in the colony was 637,397 tons, so that, apart from the export, 570,394 tons went into local consumption.

An act known as the "coal mines act of 1886" is enforced in New Zealand, and adequate ventilation and its other conditions meet with every attention. But eleven accidents took place in 1890, of which eight were fatal, while three were cases of temporary injury only.

The effect produced on a mine with a blown-out shot is a question which has attracted much of the attention of the New Zealand mining authorities. None of the three royal commissions (English, French, and German), seems to have thoroughly investigated it when reporting on the causes of explosions, etc., particularly where blasting powder has been used and the mine contains a quantity of dry coal dust, even when there is no fire-damp. The results of the experiments made by one of the British inspectors in West Lancashire (England) are extracted from the Colliery Guardian of the 28th of November last, and were as follows:

Date.	Number of experiment.	Temperature half-way down shaft.	Approximate quantity of dust used.	Weight of explosive.
1890.		*Degrees.*	*Cwts.*	
April 30	1	67	2	Three-fourths of a pound of powder.
	2	57	2	1 pound of powder.
May 21	1	70	2½	Do.
	2	68	2½	One-fourth of a pound of robusite.
	3	60		1 pound of robusite.
	4	60	3	Do.
June 26	1	70	3	1 pound of powder.
	2	70	3	Do.
	3		3½	
	4		3½	Do.
	5		4	1½ pounds of powder.
	6		4	Do.
July 30	1	71	3	1 pound of powder.
	2		2½	1¼ pounds of powder.
	3		3	1½ pounds of powder.
	4	65	3	Do.
	5	65	5	Do.
October 17	1	58	2	Do.
	2	58	4	Do.
	3	58	4	Do.
	4	56	2	Do.
	5	56	5	Do.
	6		4	Do.
October 20	1			Preliminary.
	2	54	3	1½ pounds of powder.
	3	54	3	Do.
	4		3	Do.
	5	54	5	Do.
	6		4½	2 pounds of powder.
	7	54	6	1½ pounds of powder.

RESULTS ON APRIL 30.

(1) Dust not ignited.

(2) A violent explosion in shaft; flame rose 20 feet in air, firing surface woodwork, destroying electric cable, and rendering further experiments impossible.

RESULTS ON MAY 21.

(1) Fired twenty minutes after dust was put down, flame issuing from shaft.

(2) Dust not ignited.

(3) Fired two hours after previous experiment, no fresh dust being put down; explosion considerable, but flame did not reach top.

(4) The fiercest explosion of all, volume of flame rising 30 feet into air.

The following is the analysis of the ventilation of the shaft during the progress of these experiments:

	Per cent.
Oxygen	20.56
Nitrogen	79.2
Carbon dioxide	0.15
Sulphur dioxide	0.09
Total	100

RESULTS ON JUNE 26.

(1–6) No ignition resulted; cause not clearly ascertained; perhaps due to wet in, and large dimensions of, shaft.

RESULTS ON JULY 30.

(1) No ignition.

(2) Ignition at first shot; flame rose 30 feet in air, lasting three or four seconds.

(3) Dust not ignited.

(4) Ignition, followed by violence in the pit.

(5) Dust ignited; flame rushed 40 feet above and displaced woodwork at top of pit.

RESULTS ON OCTOBER 17.

(1) No violence.

(2) Ignition of dust, but flame did not reach surface on first shot, nor did it as regards No. 3; the second was followed by rush of dust and, ten seconds later, by explosion, flame projecting 20 feet.

(4 and 5) No ignition.

(6) Unusual violence, but no flame.

RESULTS ON OCTOBER 20.

(1) No unusual violence.

(2 and 3) The same.

(4) Ignition, but no flame.

(5) Considerable violence; no flame.

(6) No ignition.

(7) The most violent of all the explosions; flame issued for five or six seconds with dense smoke; woodwork for 37 feet about pit mouth destroyed.

The foregoing experiments may be accepted as reasonably good proof that blasting with gunpowder in dry and dusty mines is highly dangerous. Still, the French commission was entirely opposed to this view, the British left it in doubt, and the German was disposed to accept it.

Under the mining act of 1886 examinations for mine managers are held every six months in New Zealand, in addition to passing which the candidate must furnish a certificate of having served at least three years in underground workings, five years being required by the board for a mine manager's certificate; thus both theoretical and practical knowledge and experience are insisted on.

The total value of works in progress and constructed by the mines department in the interest and for the development of the mining industry of 1890–'91 was:

Description.	Total cost of construction or amount authorized to be expended.	Expenditure by way of subsidy or otherwise by mines department.	Amount of liability by mines department on works in progress.
	£ s. d.	£ s. d.	£ s. d.
Roads on gold fields	8,811 14 4	10,815 14 8	5,201 5 0
Roads and tracks undertaken by county councils, subsidized by mines department	2,703 5 0	2,252 5 5	5,027 8 4
Work undertaken by prospecting associations and companies, subsidized by mines department			663 0 0
Water races	5,542 19 8	6,234 4 6	
Wharves		39 9 9	
Schools of mines	3,847 10 0	3,898 4 0	
Tracks to open up mineral lands		78 4 7	419 19 5
Total	20,905 9 0	23,319 2 11	11,311 12 9

New Zealand offers many advantages for mining in the possession of large rivers, creeks, and streams which can be utilized. Workings on a large scale have proved that, with water obtainable at any reasonable distance from a mine or from the machinery location, electro-motive power can be transmitted, which, so generated, is cheaper than steam power.

A new coal-mines act proposes to make it compulsory on owners and lessees of coal mines to supply the government and other railways and also steam vessels with coal for their traveling requirements on reasonable terms. Eight hours are to constitute a day's work; a contribution on the output is to be made obligatory on the owners, so as to give relief to workmen or their families in cases of accident; and those who are engaged on seven consecutive week days on steam, etc., machinery are to have twelve half or six whole holidays annually.

KEROSENE SHALE IN NEW ZEALAND.

In New Zealand boring for oil was carried on as far back as twenty years, when, it is stated, about 50 gallons per week were got for a short period. Recently an English company has commenced operations at New Plymouth, but their labors are not yet sufficiently advanced to expect results. The presence of oil is undoubted, it being found on the ocean beach at low water. The great difficulty apparently consists in preventing its loss by permeating the loose, unformed ground and spreading all through the surrounding country; and the question whether petroleum can be obtained in New Zealand in sufficient quantities to pay for working is still unsolved.

KAURI GUM.

The kauri gum of New Zealand, although strictly speaking not a mineral, partakes to such an extent of that nature that where the vegetable portion of the substance ends is almost impossible to determine. Like coal, fossilization has placed it among the products of the mineral kingdom. The importance of this industry, which demands no capital on the part of the collector, may be estimated by the fact that 14,957 tons, valued at £708,153, were exported in the years 1890 and 1891.

ALEXANDER CAMERON,
Vice-Consul.

UNITED STATES CONSULATE,
Sydney, September 16, 1892.

MANUFACTURE OF BRONZE POWDER.

REPORT BY COMMERCIAL AGENT DUNLAP, OF FÜRTH.

The principal part of bronze powder sent to the United States from Germany is manufactured in and near the cities of Fürth and Nuremberg, Bavaria, perhaps a hundred establishments being engaged, the factories being generally located on some small stream, where water furnishes cheap power for driving the hammers and stamps. The exports of bronze powder and metal leaf to the United States from the two places named for the year ended September 30, 1892, were as follows:

Fürth	$399,177.94
Nuremberg	303,849.64
Total	703,027.58

Of this total, perhaps $50,000 in value may have been of metal leaf of various kinds, the export of which formerly was much greater, but now it is nearly suspended on account of the high duty.

Bronze powder is composed of copper, tin, zinc, and antimony melted in proper proportions and cast first into rods of half an inch in diameter and about 3 feet long. These rods are then rolled until about 2 inches wide, and then cut into suitable lengths for handling. These pieces then go to hammers, where they are beaten into a very small fraction of their former thickness, and are then taken to the sulphuric-acid bath, where each sheet is washed to remove all impurities, rust, and dirt. After being thoroughly dried the sheets are again hammered by steam hammers until no further reduction is possible, there being a limit to which machinery can be used. Up to this stage the treatment the metal receives, whether intended for metal leaf or powder, is identical, but now the process changes. If designed for metal leaf, the further beating must be done by hand; but if for bronze powder, the sheets go to shears, where they are cut up into small particles, and now become known as clippings. These are now ready for the stamp mills, which are run in batteries, enabling one man to run or attend fifty or more. When sufficiently pulverized, the powder is sifted in a peculiar manner, the heavier and better qualities going to one receptacle and the inferior grades to another. The cheaper qualities are mixed with quartz powder to enable them to be sold cheaply.

The expense of manufacturing bronze powder rests largely in the production of the clippings, a great deal of hand work being required. Of late, parties in the United States have begun the manufacture of bronze powder and have purchased the raw material in Bavaria, which has excited fears that ultimately the manufacture will be successfully installed there and the business here broken up. In order to prevent such a disaster to themselves, the manufacturers of bronze powder have entered into an arrangement whereby all agree not to sell any clippings to be exported to the United States, except through a committee which places the orders and at an agreed price—1.25 marks per pound, or about 30 cents—a price which they hope and expect will virtually stop the demand.

Bronze powder is sold at prices varying from 24 cents per pound for the very cheapest to 75 cents for the best quality, the duty being 12 cents per pound, irrespective of quality or value. The greater part of the bronze powder shipped from Fürth is invoiced at less than 50 cents per pound; in fact, the average is not over 40 cents; so it may be seen that the manufacturers of clippings have a pretty sure thing on preventing the manufacture of bronze powder in the United States so long as they can control the quantity and price of the raw material and keep the trade in the article which they now hold. There is no duty on clippings.

H. J. DUNLAP,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Fürth, October 30, 1892.

AMERICAN COTTONS FOR GERMANY.

REPORT BY CONSULAR CLERK MURPHY, OF BERLIN.

Having frequently observed that the prices of cotton wares are higher in Germany than they are in the United States, it has occurred to me that, if the German customs duty is not an insurmountable obstacle, it might be possible for American manufacturers of cheap, light-weight cotton goods to compete in this market. As the German customs duty is based upon the weight, the possibility of competing is naturally greater with light-weight goods.

After making due inquiry, I find that in the city of Hanover, in most shops, the lowest-priced calico kept in stock is retailed at 40 pfennigs (9½ cents) per meter, this being equivalent to about 8¾ cents per yard. The regular calico width is 80 centimeters, or about 31 inches.

In some shops, I am told, calico can be had as low as 35 pfennigs (8⅓ cents) per meter, this being equivalent to about 7½ cents per yard. Remnants and entire pieces from old stock are sold at reduced prices, but not lower than 25 pfennigs per meter (about 5½ cents per yard).

GEORGE H. MURPHY,
Consular Clerk.

UNITED STATES CONSULATE-GENERAL,
Berlin, October 24, 1892.

GAMBIER.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

There are perhaps few substances more widely, if indirectly, used and at the same time less known to those outside the immediate industry concerned than gambier. The very name is unfamiliar to the general public, while any knowledge of the origin and mode of preparation of gambier is uncommon.

Gambier is very extensively employed in the dyeing and tanning industries, and a large number of materials and articles of daily use have in the course of their manufacture been treated with the substance under consideration. Gambier is, moreover, a valuable medicine, and the more carefully prepared qualities are largely used in cases of diarrhea, dysentery, relaxed throat, etc.

Similar in chemical composition to ordinary catechu, gambier is obtained by boiling the leaves and twigs of the *Uncaria gambir* plant, a native of the East, and found either wild or cultivated in the Straits Settlements and Johore, as well as in Java and Sumatra. *Uncaria gambir* belongs to the natural order *Rubiaceæ,* in which are also embraced the cinchonas or quinine-yielding plants, as well as coffee. The flowers are small and crowded together, and the plant itself is a strong, shrubby climber. Gambier appears to have been used in India for dyeing purposes from a very remote period, but its introduction into Europe commenced with the present century.

The manufacture of gambier is still conducted on very primitive lines and with the crudest appliances. A plantation is generally cropped some eighteen months after being planted; and cropping may be repeated as often as four times a year, the operation being ofttimes conducted with no sparing hand. The remaining process is exceedingly simple. The leaves, twigs, etc., are boiled in a rough caldron until the water in which they are steeped becomes sirup. The extract is then drawn off, cooled, and stirred until crystallization commences. The gambier is then cut by hand into cubes, dried either by simple exposure to the air or by smoke, and packed in mats for exportation.

The life of a gambier plantation averages only some ten years, and in fifteen years at latest it is abandoned. The capital required is very small, and the returns are rapid; hence the favor with which the industry is regarded by the Chinese.

Gambier has a pale brown or yellow color, with an even, earthy fracture, the cubes of commerce being about an inch square. There is much variation in the quality of the gambier offered for sale, and the art of adulteration has penetrated this branch of industry.

At one time there are stated to have been eight hundred plantations in Singapore alone, and the amount of gambier imported into Great Britain from the Straits Settlements and Johore is no less than 20,000 tons per annum. Gambier is undoubtedly a valuable commercial product, and improved appliances and management of the plantations can hardly fail to largely develop it at no distant period.

While to-day gambier is probably most extensively used for backing silk, it is rapidly coming into use for tanning purposes. As it can be raised so cheaply in this part of the world and grows so luxuriantly, I think that in time it will take the place of hemlock bark, which is so rapidly disappearing in the United States. It is to be hoped that while it is on exhibition at Chicago by the Sultan of Johore our manufacturers will give it a thorough trial.

In 1891, 540,000 piculs (1 picul=133⅓ pounds) of gambier, not including cube, were purchased locally in Singapore. The greatest import was from Johore, which sent to Singapore 392,161 piculs, against 424,226 piculs in 1890. The following is the export for the years 1887-'91:

	Piculs.
1887	732,962
1888	672,183
1889	720,931
1890	769,704
1891	697,785

The amount of gambier shipped through this consulate to the United States for the year 1891 was 113,730 piculs (about one-sixth of the entire export), valued at $758,610 (Mexican); and for the single quarter ended March 31, 1892, it was 46,531 piculs, valued at $292,000 (Mexican).

The market price of gambier here is about $6 per picul, while cube Nos. 1 and 2 vary from $8 to $9.25.

All, or nearly all, the gambier shipped from this port to the United States is sent in American bottoms and supplies a sure return cargo for outward oil ships.

I confidently expect to see gambier become one of the best-known articles in our markets. The denudation of our oak and hemlock forests points to this state of affairs.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, September 25, 1892.

PUBLIC WORKS OF GERMAN MUNICIPALITIES.

REPORT BY COMMERCIAL AGENT WASHBURN, OF MAGDEBURG.

INTRODUCTORY EXPLANATIONS.

The statistics here appended are official. In some few instances the figures given are only approximate, because of the impossibility of separating other details closely allied to those considered.

To facilitate comparisons, a table showing the population of forty-seven cities is first given. In many cases the data desired were not furnished.

Table showing the population of German cities in 1890.

Cities.	Male.	Female.	Total.	Increase, 1885–'90.
				Per cent.
Berlin	759,623	819,171	1,578,794	3.64
Hamburg	281,155	288,105	569,260	3.76
Leipsic	175,721	179,148	354,899	3.11
Munich	169,875	179,149	349,024	4.32
Breslau	153,698	181,488	335,186	2.24
Cologne	139,238	142,523	281,761	3.21
Dresden	132,435	144,087	276,522	2.3
Magdeburg	103,027	99,208	202,235	4.73
Frankfort-on-the-Main	85,427	94,593	180,020	3.03
Hanover	80,521	83,072	163,593	3.38
Königsberg	74,939	86,589	161,528	1.33
Düsseldorf	72,106	72,576	144,682	4.54
Altona	71,166	72,083	143,249	2.51
Nuremberg	70,005	72,518	142,523	4.28
Stuttgart	66,509	73,308	139,817	2.07
Chemnitz	67,895	71,060	138,955	4.51
Elberfeld	60,695	65,212	125,907	2.83
Bremen	....	....	125,511	1.17
Strasburg	64,403	59,142	123,545	1.96
Dantzic	57,821	62,638	120,459	0.96
Barmen	56,345	59,903	116,248	2.4
Stettin	56,324	59,915	116,239	3.09
Crefeld	50,043	55,328	105,371	3.09
Aix la Chapelle	49,792	53,699	103,491	1.56
Halle	50,624	50,767	101,391	4.24
Brunswick	49,598	51,449	101,047	3.26
Dortmund	45,922	43,670	89,592	2.66
Mannheim	40,053	38,991	79,044	5.07
Essen	40,583	38,140	78,723	3.8
Mülhausen	....	....	76,968	1.97
Charlottenburg	36,596	40,277	76,873	11.57
Augsburg	36,524	39,113	75,637	2,72
Carlsruhe	36,483	37,013	73,496	3.69
Cassel	35,563	36,901	72,464	2.45
Erfurt	36,011	36,360	72,371	4.28
Mayence	37,584	34,697	72,281	1.72
Posen	33,399	36,232	69,631	0.38
Kiel	36,620	32,594	69,214	5.79
Wiesbaden	28,983	35,710	64,693	3.08
Lübeck	30,908	32,682	63,590	2.74
Görlitz	29,125	33,012	62,137	2.18
Würzburg	30,222	30,622	60,844	2.01
Metz	35,433	24,761	60,194	2,14
Duisburg	30,820	28,480	59,300	4.41
Darmstadt	27,426	28,973	56,399	5.52
Frankfort-on-the-Oder	28,143	27,583	55,726	0.6
Potsdam	27,893	26,268	54,161	1.25

STREETS AND PARKS.

The paving of the streets, their cleaning and sprinkling, and the cost of maintaining the public parks are here reviewed.

Various systems of cleaning are extant, that prevalent in Berlin being the most perfect. The condition of the streets can not be gauged by the frequency of their cleaning. The quality of the pavement, the amount of traffic, and the method of cleaning are important factors. In nine cities the cost is borne almost entirely by the municipal authorities; they are Berlin, Hamburg, Dresden, Frankfort-on-the-Main, Hanover, Bremen, Mannheim, Charlottenburg, and Potsdam. In eleven cities the cost is shared by the city and by the property-owners. Among these are the large cities of Leipsic, Cologne, Magdeburg, Nuremberg, and Stuttgart. In the remaining cities the individual property-owners are required to bear the entire expenses.

The cost of sprinkling is now universally borne by the cities. Up to 1891, however, in Hamburg only those streets were sprinkled which were paid for by interested parties.

Table showing manner in which the streets are paved.

Cities.	Area of streets.	Paved with—			Otherwise constructed.
		Stone.	Asphalt.	Wood.	
	*Ares.**	*Ares.**	*Ares.**	*Ares.**	*Ares.**
Berlin	52,400	41,047	6,560	689	4,104
Munich	18,317	3,276	54	55	14,932
Breslau	11,017	9,772		56	1,188
Leipsic	13,856	9,119	479		4,258
Cologne		7,545	16	20	
Magdeburg	14,766	11,295	1,758		
Frankfort-on-the-Main		6,013	64	239	
Königsberg	8,141	7,853	39		249
Düsseldorf	13,160	2,134	6		10,879
Altona	5,493	3,148	3	1	2,341
Nuremberg	15,061	5,004	11		10,046
Stuttgart	7,716	3,262			4,454
Chemnitz	8,505	1,200			7,305
Bremen	7,239	7,167	1	36	35
Barmen	3,168	1,813	5		1,350
Crefeld	4,591	2,428		3	2,160
Aix la Chapelle	5,260	3,150			550
Halle	4,250				
Brunswick	12,928	3,101	2		9,825
Essen	3,734	2,489			1,245
Carlsruhe	5,708	1,505	9	11	4,184
Cassel	6,743	4,094	308		2,341
Erfurt	3,410	1,463			1,947
Posen	4,482	3,876			606
Kiel	3,093	2,538			555
Wiesbaden	5,348	1,815	141		3,392
Metz	4,191	3,609	290		292
Duisburg	2,650	600			2,050
Potsdam	4,851	2,770	6		290

*1 are = 0.02471 acre.

Table showing the average and total cost of paving during 1889.

Cities.	Number of streets.	Area paved with new material.	Cost of—			Average cost of 1 square meter.		
			Paving material.	Border trimming.	Other material.	Paving material.	Border trimming.	Other material.
		*Sq. met.**	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Munich	13	60,371	923,079	....	....	15.30	....	....
Breslau	20	36,520	475,851	31,821	16,582	13.00	0.90	0.50
Magdeburg	20	24,057	128,556	24,552	59,507	5.30	1.00	2.50
Frankfort-on-the-Main	9	13,585	198,410	23,831	42,416	14.60	1.80	3.10
Hanover	29	44,303	357,553	99,635	27,304	8.10	2.20	.60
Königsberg	9	22,050	206,250	7,250	....	9.40	.30	....
Düsseldorf	20	71,342	510,786	23,230	24,302	7.20	.30	.30
Altona	6	7,084		86,900		....	....	....
Nuremberg	5	11,000	....	....	....	....	....	....
Stuttgart	6	12,335	212,653	3,889	186	17.24	.32	.02
Chemnitz	4	8,750	....	....	....	....	....	....
Bremen	12	19,117	120,660	17,655	33,251	6.30	.90	1.80
Dantzic	11	7,985	61,000	8,725	3,775	7.60	1.10	.50
Barmen	8	11,285	102,336	....	5,300	9.00	....	.50
Crefeld	23	27,087	183,067	9,358	545	6.76	.34	.02
Aix la Chapelle	19	9,401	93,400	....	....	10.00	....	....
Halle	27	35,300	269,540	5,035	12,650	7.64	.14	.36
Brunswick	7	16,339	10,265	11,532	21,513	.60	.70	1.30
Essen	9	....	70,719	....	....	....	....	....
Charlottenburg	6	....	....	....	....	....	....	....
Augsburg	9	6,775	96,250	....	....	14.20	....	....
Carlsruhe	3	39,136	300,148	5,795	34,063	7.67	.15	.87
Mayence	14	31,449	206,803	30,555	89,283	6.60	1.00	2.84
Cassel	19	10,150	4,290	38,090	65,660	.40	3.70	6.50
Erfurt	34	....	141,139	27,147	54,128	....	....	....
Kiel	12	21,155	154,920	14,183	....	7.30	.70	....
Görlitz	4	10,274	49,552	7,660	....	4.80	.80	....
Frankfort-on-the-Oder	5	....	....	....	....	....	....	....
Potsdam	6	9,633	83,916	2,998	2,894	8.70	.30	9.30

* 1 square meter = 1.1962 square yards.

Table showing street-cleaning and its cost.

Cities.	Area of streets.	Number of times cleaned weekly.					Cost of cleaning.
		Six or seven times.	Three to five times.	Twice.	Once.	Less than once.	
	Sq. met.	*Sq. met.*	*Sq. met.*	*Sq. met.*	*Sq. met.*	*Sq. met.*	*Marks.*
Berlin	8,046,271						1,600,462
	7,429,910						
Hamburg	4,234,832	65,147	240,214	1,083,017	2,846,454		400,920
Leipsic	812,942						87,374
	160,000	47,278	112,722				
Munich	102,000	102,000					30,200
Breslau	221,590	221;590					281,047
Cologne	117,098	127,098					50,000
Dresden	698,333	634,840	63,493				265,608
Magdeburg	250,270	78,690	97,579	74,001			113,105
Frankfort-on-the-Main	599,052	33,199	329,802	211,051	25,000		167,743
Hanover	736,600						126,296
Düsseldorf	460,000	460,000					
Altona	552,754			552,754			53,105
Nuremberg	532,000	110,100	422,100				15,000
	102,200						
Stuttgart	320,000	320,000					89,000
	100,000						
Chemnitz	850,530			119,970		730,560	57,330
	30,000						
Bremen	1,167,272	30,549	746,632	389,091			150,000
Dantzic							87,076
Barmen	36,000			36,000			13,000
Crefeld	405,500						7,000
	60,000			60,000			
Aix la Chapelle	45,000	50,000	40,000				21,000
Halle	156,357						17,152
Mannheim	337,525	59,047	219,430				110,000
Essen	373,391	373,391					4,000
	90,000	90,000					
Charlottenburg	1,935,180		1,935,180				73,200
Augsburg							27,100
Carlsruhe	527,000						
	326,700		114,220	200,680	11,860		34,700
Cassel							35,680
Erfurt	341,043						6,768
	51,985			51,985			
Posen							24,027
Kiel	216,000	42,129					13,716
Wiesbaden	311,936	284,760	27,176				65,800
Lübeck	820,000						23,287
Görlitz	781,400						18,033
Metz	463,200	463,200					16,000
	167,900						
Frankfort-on-the-Oder	198,260			198,260			13,967
	120,814						
Potsdam	725,089			725,089			56,000

Table showing street-sprinkling and its cost.

Cities.	Area sprinkled.	Number of times daily.	Number of sprinkling carts.	Quantity of water used.	Cost.
	Sq. meters.			*Cu. meters.*	*Marks.*
Berlin	8,046,271	2 to 4	150	736,360	225,582
Hamburg	69,200	1 to 2	....	214,000	60,000
Leipsic	1,600,495	2	72	175,452	73,825
Munich	322,000	2	....	*640	21,000
Breslau	1,102,395	2 to 8	10 to 23	160,380	45,778
Cologne	786,770	2 to 4	25	71,702	29,994
Dresden	1,409,727	2	50	179,291	84,064
Magdeburg	350,270	2	11	45,594	....
Frankfort-on-the-Main	415,472	2	....	131,644	†40,625
Hanover	....	....	10	28,460	7,026
Königsberg	....	1 to 2	14	33,000	3,500
Düsseldorf	....	2 to 4	15	46,750	10,500
Altona	404,324	2	8	23,581	6,486
Nuremberg	224,000	2	....	22,150	11,420
Stuttgart	544,100	1 to 2	....	....	†9,645
Chemnitz	800,500	1 to 3	....	63,020	16,430
Bremen	778,181	1 to 2	20	....	....
Dantzic	....	2	3	....	....
Barmen	500,000	4	9	22,165	6,193
Crefeld	18,000	1	6	*270	*93
Aix la Chapelle	201,435	1	....	9,648	2,861
Halle	750,000	1	8	25,300	9,239
Mannheim	219,430	....	27	75,000	23,000
Essen	190,000	....	5	‡400	....
Charlottenburg	105,200	4 to 5	11	7,225	12,300
Augsburg	....	2	6	....	....
Carlsruhe	501,000	2	14	25,990	7,009
Cassel	....	....	3	3,575	....
Erfurt	51,985	2	....	18,000	†2,149
Posen	....	....	....	11,519	3,642
Kiel	....	....	4	....	†3,227
Wiesbaden	383,220	1 to 3	12	40,350	19,987
Lübeck	690,000	....	8	11,035	†2,413
Görlitz	....	1 to 2	5	....	†1,198
Metz	253,697	2	6	*200	†2,500
Duisburg	300,000	2	5	*350	†3,382
Frankfort-on-the-Oder	....	2	4	20,000	†300
Potsdam	....	1 to 2	10	46,000	9,275

* Daily. † Does not include cost of water. ‡ Weekly.

Table showing the number of city parks and the cost of maintenance.

Cities.	Number.	Area.	Cost of maintenance.
		Hectares.	*Marks.*
Berlin	67	329.5	370,521
Hamburg	....	95.04	————
Leipsic	16	193.53	55,695
Munich	....	109.3	43,500
Breslau	21	89.87	97,685
Cologne	4	26	48,570
Dresden	38	21.8	44,521
Magdeburg	8	225	45,000
Frankfort-on-the-Main	....	25	46,645
Hanover	14	15.06	12,126
Königsberg	8	18	10,000
Altona	11	3.06	6,300
Nuremberg	47	30	35,500
Stuttgart	50	5.41	20,300
Chemnitz	20	22.1	29,000
Bremen	2	181	98,150
Barmen	3	108.51	15,000
Crefeld	9	7.5	15,000
Aix la Chapelle	8	43.24	51,309
Halle	....	23	29,680
Mannheim	....	14.2	29,800
Essen	....	76.6	9,370
Charlottenburg	4	2.62	8,700
Augsburg	....	15.3	16,000
Carlsruhe	5	6.64	25,420
Cassel	12	16.06	5,950
Erfurt	12	20.56	16,961
Posen	6	10	12,930
Kiel	3	6.99	4,346
Wiesbaden	10	22.95	37,000
Lübeck	....	28	16,955
Görlitz	2	81.8	20,380
Metz	4	52	17,800
Frankfort-on-the-Oder	....	1.5	5,951
Potsdam	3	3.17	998

NOTE.—1 hectare=2.471 acres.

SEWERAGE SYSTEMS.

Three methods of disposing of the sewage prevail, viz:

(1) Refuse and excrement are emptied from the sewers direct into the rivers. This system prevails in Hamburg.

(2) Refuse and excrement are conducted by sewers to fertilize waste and barren land. This is done in Berlin.

(3) The sewers conduct only the ordinary street refuse. The excrement is conveyed either into underground basins or barrels and thence removed.

Table showing length of sewers and their cost.

Cities.	Length of sewers.	Number of buildings connected.	Number of tenants.	Cost of operating.		Cost of sewerage system.	
				Total.	To the city.	Total.	Improvements, 1889–'90.
	Meters.			*Marks.*	*Marks.*	*Marks.*	*Marks.*
Berlin	588,565	19,232	1,290,737	6,440,768	2,259,495	81,340,308	1,906,291
Hamburg	299,811	20,801	540,500	147,600	......	21,236,550	516,150
Leipsic	95,379	6,174	211,500	......	......	......	82,405
Munich	116,353	4,500	135,000	58,000	......	5,901,904	900,000
Breslau	241,494	6,560	......	......	......	8,202,730	108,847
Cologne	53,000	7,000	100,000	59,453	......	4,026,000	620,000
Dresden	150,202	......	......	......	......	......	173,747
Magdeburg	70,000	......	170,000	14,000	......	4,100,000	600,000
Frankfort-on-the-Main	202,265	7,641	165,000	156,589	......	12,000,000	489,407
Hanover	93,000	5,600	106,000	29,000	29,000	......	78,000
Königsberg	26,560	2,008	......	......	......	764,700	64,700
Düsseldorf	38,835	709	......	36,476	16,786	2,004,000	307,033
Altona	42,000	9,300	105,000	35,000	......	1,900,000	13,000
Nuremberg	101,035	8,400	......	21,553	......	3,300,758	208,573
Stuttgart	75,697	4,210	......	......	......	......	......
Chemnitz	76,914	......	......	14,700	......	2,719,600	149,600
Bremen	97,700	(*)	......	......	......	......	329,823
Dantzic	45,250	4,404	......	......	10,000	......	......
Barmen	7,500	......	......	......	......	......	......
Crefeld	27,789	961	11,300	16,468	......	......	122,244
Aix la Chapelle	46,500	5,700	......	22,500	......	......	......
Halle	58,000	......	......	39,586	28,550	......	......
Brunswick	27,000	......	......	......	......	1,100,000	250,000
Mannheim	30,000	900	......	45,000	......	......	......
Essen	......	3,800	64,000	40,000	......	38,080	11,050
Charlottenburg	......	......	......	......	......	3,500,000	......
Augsburg	......	3,800	......	4,000	4,000	......	50,000
Carlsruhe	52,914	3,000	......	12,730	......	2,392,000	101,879
Cassel	34,120	3,140	......	7,650	......	855,760	41,200
Erfurt	81,483	3,632	70,037	8,871	8,748	808,531	28,756
Posen	1,573	50	2,500	......	......	159,000	9,000
Kiel	29,259	......	......	15,741	......	658,302	115,668
Wiesbaden	40,000	2,800	58,000	98,000	48,000	2,350,000	350,000
Lübeck	52,327	......	......	3,000	3,000	884,802	55,004
Görlitz	39,000	2,300	61,000	31,950	......	......	15,000
Metz	25,200	2,886	51,945	7,800	......	......	......
Duisburg	8,300	186	......	8,400	......	415,000	16,800
Frankfort-on-the-Oder	10,500	......	......	......	......	......	......
Potsdam	18,500	790	18,300	14,483	......	3,750,000	52,854

* Two-thirds of all.

WATERWORKS.

In Altona, Frankfort-on-the-Oder, Charlottenburg, and Potsdam the works are conducted by stock concerns; in all other places by the cities themselves.

Table showing the length of pipes, number of buildings connected, quantity of water used, and annual capacity for 1889–'90.

Cities.	Length of pipes.	Number of buildings connected.				Total supply used.	Total annual capacity.
		City.	Private.	Total.	Per cent.		
	Meters.					*Cu. met.*	*Cu. met.*
Berlin	683,314	....	....	21,038	....	34,770,828	51,100,000
Hamburg	407,073	614	16,960	17,574	....	41,747,705	....
Munich	197,866	135	6,113	6,248	55.5	11,684,380	28,062,800
Breslau	164,937	....	....	6,447	93.5	8,907,022	....
Leipsic	143,522	....	....	4,403	....	7,325,109	13,505,000
Cologne	142,403	124	11,932	12,056	....	13,360,830	30,660,000
Dresden	167,056	155	7,564	7,719	96.1	7,844,056	19,000,000
Magdeburg	125,399	87	5,154	5,241	....	6,742,522	11,049,600
Frankfort-on-the-Main	169,293	....	....	8,463	78.4	8,153,233	13,285,000
Hanover	125,206	48	6,086	6,134	16.2	5,076,283	8,395,000
Königsberg	77,618	....	....	4,670	....	3,125,318	7,095,600
Düsseldorf	122,404	....	....	6,423	....	4,430,031	9,000,000
Altona	136,431	....	....	....	....	4,898,355	7,300,000
Nuremberg	112,448	112	4,688	4,800	56.4	3,437,200	4,000,000
Stuttgart	135,358	60	4,638	4,698	75.8	3,879,000	5,803,900
Chemnitz	84,720	51	3,491	3,542	67.9	2,037,027	3,500,000
Bremen	135,820	124	10,932	11,056	58	3,700,621	18,483,600
Strasburg	74,969	58	3,270	3,325	84.7	2,112,065	6,570,000
Dantzic	72,856	74	4,166	4,240	78.4	3,843,000	....
Barmen	98,877	....	....	4,238	....	4,497,903	8,760,000
Crefeld	76,353	64	5,435	5,499	51.9	2,449,735	3,000,000
Aix la Chapelle	90,616	57	4,202	4,259	58.3	1,702,450	4,197,500
Halle	85,755	38	4,279	4,317	99	3,254,486	5,000,000
Brunswick	71,360	31	4,502	4,533	77.5	2,475,260	5,000,000
Dortmund	188,106	....	....	4,253	....	9,729,520	12,000,000
Mannheim	55,126	100	2,900	3,000	....	1,212,467	1,500,000
Essen	65,554	....	....	3,952	....	5,032,005	6,000,000
Charlottenburg	179,031	20	2,651	2,671	42.7	2,374,440	....
Augsburg	60,000	79	3,126	3,205	....	5,900,000	7,568,000
Carlsruhe	57,742	33	2,934	2,967	89.9	2,950,313	7,300,000
Cassel	51,980	85	2,519	2,604	....	1,154,480	1,679,000
Erfurt	83,548	24	3,840	3,864	94	1,195,000	2,920,000
Mayence	48,116	....	....	1,950	....	748,026	2,000,000
Posen	29,333	43	1,069	1,112	96.5	1,249,975	2,336,000
Kiel	54,414	52	2,654	2,706	....	1,791,179	2,200,000
Wiesbaden	55,935	56	2,871	2,927	98.1	1,766,110	....
Lübeck	55,600	....	....	3,956	60.3	4,214,000	5,000,000
Görlitz	....	40	2,080	2,120	90.9	1,270,517	....
Duisburg	67,287	41	3,106	3,147	69.8	3,557,055	4,500,000
Frankfort-on-the-Oder	29,773	....	....	1,002	....	868,170	1,642,500
Potsdam	46,377	20	1,047	1,067	....	457,105	900,000

Table showing the quantity of water paying tax, the consumption per head, and receipts and expenses.

Cities.	Quantity of water paying tax.	Average consumption per head.	Gross receipts.	Expenses.	Net income.
	Cu. met.	*Liters.*	*Marks.*	*Marks.*	*Marks.*
Berlin	30,290,971	55	6,263,026	1,342,281	4,920,745
Hamburg			2,230,554	834,863	1,395,691
Munich	11,684,380	87.4	663,150	109,788	553,362
Breslau	6,351,736	53.6	986,212	200,081	786,131
Leipsic			497,840	206,500	291,340
Cologne			972,999	205,127	767,872
Dresden	7,844,056	73.3	951,645	174,252	777,394
Magdeburg	5,050,345	69.9	531,639	157,120	374,519
Frankfort-on-the-Main	8,021,589	116.5	1,453,344	388,045	1,065,299
Hanover	4,928,527	73	421,410	296,611	124,799
Königsberg	2,885,518		284,880	65,192	219,688
Düsseldorf	3,756,033	72.1	431,740	78,760	352,980
Altona	4,875,855	87	614,967	157,102	457,865
Nuremberg	2,208,442	43.2	388,595	58,988	329,607
Stuttgart			498,191	145,867	352,324
Chemnitz		27.6	383,482	80,904	302,578
Bremen			471,143	124,801	346,342
Strasburg	1,900,858	24.4	208,162	40,820	167,342
Dantzic		37.1	327,669	68,828	258,841
Barmen	4,497,903	93.7	381,726	139,647	242,079
Crefeld			240,536	86,221	154,315
Aix la Chapelle	1,417,757	31.7	312,209	98,880	213,329
Halle	3,225,686	71.4	371,292	77,414	293,878
Brunswick	2,475,260	47.4	248,103	148,346	99,757
Dortmund			635,768	220,956	414,812
Mannheim		30.4	248,348	35,088	205,260
Essen			219,652	87,382	132,270
Charlottenburg			447,382	144,633	302,749
Augsburg	5,058,000	174.2	157,290	26,600	130,690
Carlsruhe	2,958,313	87.1	224,636	73,378	171,258
Cassel	646,321		143,167	119,386	23,781
Erfurt	1,158,702	34.5	186,175	27,019	159,156
Mayence	641,073		216,362	158,060	58,302
Posen	1 025,411	35.4	122,130	107,586	14,544
Kiel	1,316,866	55.6	157,077	63,838	93,239
Wiesbaden		42.6	234,185	40,138	194,047
Lübeck			145,621	82,385	63,246
Görlitz			110,814	46,852	63,962
Duisburg	3,486,085	136.4	218,892	47,002	171,890
Frankfort-on-the-Oder	832,575	40.5	136,251	48,856	87,395
Potsdam	410,505	18.7	110,200	29,400	80,800

GAS AND PETROLEUM LIGHTING.

Table showing the price of gas and number of gas motors.

Cities.	Price of 1 cubic meter of gas.					Number of gas motors.
	Private consumption.			City buildings.	Street lighting.	
	Real.	Average.	Lowest.			
	Pfennigs.	*Pfennigs.*	*Pfennigs.*	*Pfennigs.*	*Pfennigs.*	
Berlin	...	16	...	...	...	...
Hamburg	...	18	...	...	10	46
Munich	23	22.425	16.56	...	...	...
Breslau	17.64	17.46	15.3	...	8.5	18
Leipsic	20	19.6	19	11.8	11.8	24
Cologne	15	13	12	...	...	26
	...	16	...	...	...	1
Dresden	18	17.46	14.4	11	6.13	38
Magdeburg	18	17	15	15	13	...
				...	15.3	...
Frankfort-on-the-Main	37	35.15	33.3	33.3	14.69	...
	15.7	14.9	14.13	14.13	6.5	...
Hanover	16	15.5	13.5	13.5	2	...
Königsberg	...	16	...	...	...	2
Düsseldorf	16	15	12.5	...	...	7
Altona	...	20	...	...	10.2	...
Nuremberg	...	20	...	16	15	8
Stuttgart	...	16	...	...	...	...
Chemnitz	18	17	...	15	10	17
Bremen	...	20	...	...	...	7
Strasburg	...	18	...	9	9	5
Dantzic	...	17	...	...	...	...
Barmen	17.5	17	11	...	...	3
Stettin	...	17.5	...	...	8	...
Crefeld	19.4	18	10	...	...	10
Aix la Chapelle	16	15	13	...	5.5	...
Halle	18	17.55	13.5	...	13.5	8
Brunswick	...	18	...	...	...	3
Dortmund	16	15.2	12.8	...	11	2
Mannheim	18	17.1	12.6	12.6	10	11
Essen	15	14.5	13	...	9	3
Charlottenburg	18	16	...	...	8.513	...
Augsburg	22	...	15.4	...	...	4
Carlsruhe	18	16.3	...	4	4	...
Cassel	16	15.52	15.2	15	...	3
Erfurt	18	17	15	14	11	1
Mayence	...	20	...	...	9	1
Posen	19	18.5	15.2	14.25	14.25	8
Kiel	20	19.4	16	...	...	...
Wiesbaden	...	20	...	15	13	...
Lübeck	18	17.1	14.4	...	...	...
Görlitz	20	19	16	16	...	8
Metz	...	20	...	...	20	...
Duisburg	15	14	11	...	...	3
Darmstadt	26	23	22	10.8	10.8	...
Frankfort-on-the-Oder	...	16	...	14	13	...
Potsdam	17.5	16.5	15	...	...	...

Table showing the number of gas jets and petroleum lamps.

Cities.	Number of gas jets.		Number of inhabitants to each jet.	Number of jets burning all night.		Number of oil lamps.
	Total.	Per 1,000 meters main pipe.		Total.	Per cent.	
Berlin	16,824	23	86	14,865	88.4	1,185
	631	....		568	90	
Hamburg	20,322	56	27	20,322	100	....
Munich	5,272	....	65	....	....	....
Breslau	4,701	29	67	2,704	57.5	645
Leipsic	4,633	24	38	1,670	36.1	63
Cologne	4,699	27	46	4,442	94.5	10
	326	13	64	259	79.5	32
Dresden	6,402	27	42	3,530	55.1	315
Magdeburg	2,873	26	64	1,363	47.4	288
	184	18		91	49.5	
Frankfort-on-the-Main	4,574	....	38	3,077	67.3	10
Hanover	4,129	27	38	1,376	33.3	....
Königsberg	1,680	22	95	716	42.6	61
Düsseldorf	1,938	17	71	557	28.7	....
Altona	2,361	31	58	1,277	54.1	....
Nuremberg	2,750	19	55	2,229	81.1	27
Stuttgart	2,586	25	52	1,111	43	166
Chemnitz	2,520	25	60	992	39.4	14
Bremen	3,613	25	37	2,322	64.3	....
Strasburg	1,891	18	68	1,202	63.6	119
Dantzic	1,130	23	99	448	39.7	428
Barmen	1,397	16	83	593	42.5	107
Stettin	2,296	36	49	....	....	....
Crefeld	1,086	14	99	487	44.8	34
Aix la Chapelle	1,387	....	75	1,008	72.7	....
Halle	1,879	23	51	1,143	60.8	83
Brunswick	1,442	21	67	1,442	100	34
Dortmund	882	15	99	561	63.6	16
Mannheim	1,639	20	45	743	45.3	2
Essen	1,505	40	50	609	40.5	....
Charlottenburg	1,120	13	60	911	81.3	60
Augsburg	1,210	16	60	649	53.6	....
Carlsruhe	1,412	24	50	729	51.6	....
Cassel	1,599	40	44	638	39.9	266
Erfurt	1,130	19	61	382	33.8	10
Mayence	1,491	24	47	985	66.1	....
Posen	784	24	89	382	48.7	....
Kiel	1,147	23	56	556	48.5	173
Wiesbaden	1,221	....	51	316	25.9	....
Lübeck	1,437	23	43	971	67.6	....
Görlitz	1,036	....	58	680	65.6	70
Metz	887	....	68	349	39.4	....
Duisburg	585	12	85	276	47.3	24
Darmstadt	1,315	22	42	341	25.9	....
Frankfort-on-the-Oder	659	....	85	203	30.8	....
Potsdam	1,664	24	39	....	....	58

Table showing the consumption of gas.

Cities.	Total consumption.	Public consumption.	Private consumption.	Consumption per head.	Lost.
	Cubic meters.	*Cubic meters.*	*Cubic meters.*	*Cubic meters.*	*Per cent.*
Berlin	90,692,400	12,552,300	77,420,900	73	5.56
	...	430,300	32,687,600		...
Hamburg	...	6,301,700	26,985,800	50	...
Munich	...	1,689,300	...	...	...
Breslau	12,453,700	2,589,300	9,628,700	30.7	8.61
Leipsic	14,872,000	2,014,200	12,672,300	71.6	3.17
Cologne	20,374,400	4,512,600	15,433,200	71.5	6.81
	659,000	187,500	454,400	21.6	6.2
Dresden	19,423,600	3,522,500	15,817,400	59.1	4.62
Magdeburg	7,353,600	1,314,900	5,978,200	33.7	5.37
	736,500	73,500	650,900		10.76
Königsberg	4,523,600	1,228,300	3,200,700	20.1	6.98
Düsseldorf	6,902,600	1,189,100	5,613,700	40.8	6.41
Altona	...	773,600	3,203,400	23.4	...
Nuremberg	6,782,900	951,100	5,727,700	38.2	3.38
Stuttgart	7,863,500	911,400	6,853,600	50.8	...
Chemnitz	6,995,600	1,192,000	5,761,500	37.9	3.58
Bremen	7,151,100	1,450,100	5,594,400	41.7	6.89
Strasburg	5,024,000	842,900	4,113,400	32.1	10.05
Dantzic	3,196,900	594,900	2,573,000	23	0.89
Barmen	5,976,000	758,600	5,111,200	43.9	11.1
Stettin	4,803,100	984,800	3,773,900	33.7	9.59
Crefeld	5,168,100	412,500	4,689,700	43.4	9.75
Aix la Chapelle	...	795,000	...	...	...
Halle	4,284,400	908,400	3,340,300	35.1	16.03
Brunswick	...	569,800	3,117,500	32.3	...
Dortmund	4,091,500	569,800	3,179,600	36.5	7.83
Mannheim	5,324,100	873,000	4,327,000	58.1	7.16
Essen	2,782,300	682,900	2,032,800	26.7	19.84
Charlottenburg	4,461,200	802,600	3,588,600	53.6	6.44
Augsburg	3,418,500	391,000	2,962,500	41	6.07
Carlsruhe	4,982,700	827,500	4,056,700	57.5	9.15
Cassel	2,747,200	736,500	1,950,800	27.9	20.38
Erfurt	2,592,000	434,700	2,130,200	30.9	6.81
Mayence	3,419,600	764,300	2,604,800	37.2	10.06
Posen	2,327,800	576,500	1,675,200	24.1	11.11
Kiel	2,784,800	708,900	1,993,700	30.8	9.4
Wiesbaden	2,907,100	459,800	2,384,500	38.2	7.48
Lübeck	2,229,900	725,000	1,465,400	23.6	8.45
Görlitz	2,018,400	483,500	1,519,800	25.3	7.83
Metz	...	355,400	1,577,200	26.3	...
Duisburg	2,364,500	350,200	1,974,400	39.5	8.14
Darmstadt	1,681,000	482,100	1,157,400	20.9	6.09

In Hamburg the gas works are leased for a term of years. Rebates are granted in most places according to the amount consumed and the purpose for which the gas is employed.

ALBERT H. WASHBURN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Magdeburg, October 10, 1892.

TIN IN THE MALAY PENINSULA.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

In conversation, the governor of the Straits Settlements (Sir C. C. Smith) stated to me as a fact that his colony mined more than one-half of the tin of the world. This statement I have been able to verify, and I find that the output of the world for the year 1891 was 57,551 tons, against 36,061 tons for the Straits Settlements. If to this 36,061 tons be added the 12,106 tons the output of Netherlands India, whose tin-bearing islands are within a few hours' steam of Singapore, it will leave but 9,384 tons for the rest of the world, a fact which, I think, is not appreciated by the general public.

It is not definitely known when tin was first discovered in the native state of Perak (north of Singapore), as the discoveries of all the metals of the peninsula were made by the natives, and such discoveries were not divulged for fear of having to pay a royalty for the privilege of mining. It is only known that British tin was brought to the archipelago as late as the year 1618.

De la Loubere, the French envoy to the King of Siam in the years 1687–'88, wrote an account of the Siamese. He states that all the calin, or tin, in Siam, which country then embraced a considerable portion of the Malay Peninsula, was sold by the King to strangers, as well as to his subjects, except that which was dug out of the mines of Jon Salam or Junk Ceylon, in the Gulf of Bengal, "not above the distance of a man's voice from the coast of Siam," and where there is loadstone; for, this being a remote frontier, he leaves the inhabitants in their ancient rights, so that they enjoy the mines which they dig, paying a small profit to the Prince.

Mr. Walckenaer, the German traveler, thinks that the word "kalah" or "calin" (tin) was derived from the modern "Quedah," the Portuguese corruption of "Keddah," a province under Siamese suzerainty north of Penang.

Masudi speaks of the fourth sea of India, that of Kalah Bao, or the sea of Selahat, which had shallow waters and was full of small islands containing tin mines, where the natives used poisoned arrows, which is an exact description of the Straits of Malacca; and "selahat" is certainly the Malay for a strait.

The Arabian term "cassider," derived from the Sanscrit "kastina," applied by the Phœnicians to tin, as in the "British Cassiterides," or tin islands, off Cornwall, seems to imply that they derived their knowledge of metal in the first place from the East, or through the Arabians; and tin is not found anywhere nearer to them than in this archipelago. Then, if gold was procured by King Solomon at Mount Ophir, in Johore, south of Perak, as it is asserted by Josephus, I see no reason why the discoverers of gold should not have found tin at the same time, as the metals lay so close together; but, as it is only recorded that Solomon's fleet obtained "gold, silver, ivory, apes, and peacocks" (all of which are procurable in Malacca), we are left in the dark as regards tin. Mount Ophir is honeycombed with gold mines so ancient that there is no record of them. Roads still exist at its base, and one can almost feel certain that tin was not neglected by such energetic miners.

Our word tin, it is claimed, is traced to the Malay word "timah," how I do not know; still, if so, it is a bit of evidence in support of the theory that the tin of Malacca antedates the tin of Britain, although record of it was lost for centuries.

Up to the introduction of modern tin mining and smelting machinery by the Jelebu Company in 1889 the tin was worked for a century in a most primitive fashion by the Malays. They simply dug down at the base of a hill, took up the clay, which contained the "biji timah" (tin seed, or small nodules), and carefully washed it in running water. When dry it was smelted in a furnace built of clay between two layers of charcoal, the fire being forced into a glow by means of a bamboo bellows. When the metal became molten it trickled through a hole in the bottom of the furnace into a vessel, from which it was ladled into molds, forming slabs weighing two catties (2⅔ pounds). A rajah's, or chief's, wealth was reckoned in bars or slabs of tin, and when, as in a late act of piracy, a rajah was brought to bay by a British cruiser, the offender was mulcted, not in so many hogsheads of palm oil, as on the west coast of Africa, nor in so many jars, as in early Sarawak, but in a certain number of slabs of tin.

In 1819, when the British, under Sir Stamford Raffles, took the peninsula from the Dutch and Singapore from the Sultan of Johore, the half-hearted, shiftless tin-mining of the Malays gave place to the more energetic and thrifty mining of the Chinese, who brought with them better tools and better business methods. The Chinese absorbed the entire field until the formation of the European company mentioned, with which the Chinaman can still compete. His rice-and-water diet, with a possible tiny pipe of opium after the day's work, offsets by its cheapness the more efficient, if more costly, labor-saving machinery and highly paid European staff.

The Chinaman's manner of working is simple, though thorough. As the float tin lies at a distance of from 20 to 50 feet from the surface, gradually diminishing toward the hillsides, where it is not more than 6 feet, the jungle is cleared along its source and water is brought by a ditch from the nearest stream.

At about 6 feet down the water begins to rise from the soil; and to get rid of this, and also to utilize the water from the stream as a motive power, an ingenious chain pump is made by constructing a long wooden trough of three planks, each 100 feet in length, and this is placed with one end resting on the bank, the other sloping to the water in the lowest part of the mine. A wooden chain with its small oblong pieces of wood placed at right angles to the line is fitted accurately into the trough. The wooden chain is endless and is passed round two wheels, a small one at the lower end of the trough and a large one at the upper end. This latter is a water wheel and is turned by a constant stream of flowing water. Round the axle of this wheel are cogs, each of which, in turn, as the wheel revolves, draws up a link of the endless chain through the trough, and, as each joint fits accurately into the trough, they bring up in succession a quantity of water, which, on reaching the mouth of the trough, falls into the channel by which the water which turns the wheel is carried off, and is thus also taken away out of the mine and conducted to the next, where the process is repeated. The small wheel at the lower end of the trough regulates the chain and guides the wooden joints into the trough.

The Chinaman's tools consist of a hoe, two baskets, and a bamboo pole. The soil is scraped with the hoe into the baskets, which in turn is balanced over his shoulders at the ends of the bamboo pole.

The washing is performed much the same as placer gold is washed in California and the West. The soil is thrown into a trough filled with running water, in which the dust is carried off in solution and the ore retained by means of wooden bars nailed across the bottom of the trough.

While the Chinese system of smelting is similar to that of the Malays, it is more elaborate and carried out on a much larger scale. In place of the bamboo bellows, a very ingenious plan is adopted. The trunk of a tree about 18 inches in diameter and 10 feet long is carefully hollowed out and closed at either end. A long pole with a circular piece of wood at one end, fitting exactly into the bore of the tube, acts as a piston. In order to secure the tube being perfectly air-tight, the end of the piston is well padded with feathers. Valves are placed at each end to allow the air to enter, and in the center the nozzle of the bellows communicates with the furnace by means of a small air passage. On the piston being drawn out the air in the higher portion of the tube is forced down the nozzle, and, being drawn back, the air in the further part of the tube is similarly drawn into the furnace. The charcoal is soon brought to a white heat and ready for the molds.

The best of the Chinese mines are found in Laroot (northern part of Perak, south of the Siamese state of Quedah), in a stratum of whitish clay. In some of the tin mines in the neighborhood of the Batang and Padang rivers small quantities of gold are found mixed with the tin.

A history of the Jelebu Tin-Mining and Trading Company, already mentioned, is interesting, inasmuch as it is the only successful European-managed mining adventure in Malaya, and one of the chief producers of Straits tin.

The company was established in 1889 to mine for tin in the state of Jelebu, 40 miles inland from the Straits of Malacca. It took over certain partly opened alluvial mines and 2,000 acres of land, paying for the whole $25,000 (Mexican) in cash and $50,000 in fully paid shares.

The capital of the company was $225,000, leaving $150,000 as working capital. I interviewed Mr. Arnot Reid, of Singapore, one of the directors of the company, and he stated that during the first year there were no profits, that is, while they were opening the land, but that since then it has paid half-yearly dividends of 3, 5, 7, and 15 per cent, and on the latest half year, when it paid 15 per cent (for the six months), it also placed $40,000 to reserve and carried forward a balance of $8,600. Besides, during that time the company has paid off all prospecting charges ($6,000), all losses by advances to coolies ($20,000), all preliminary charges ($1,000), and it has paid $11,000 on plant and buildings, reducing the indebtedness on them to $17,000. At no time has the company had less than an eighth of its whole capital lying at its banker's, and at the time of writing its cash balances are in excess of half its capital. At the same time the company has, by concessions from the Government, doubled the area of its mining lands, and it has obtained still more recently an offer of the whole of a valley, supposed to be rich, conditioned on its building a road to open the district.

The present production of the company is about 800 tons of pure tin per annum. Its Jelebu European staff consists of an administrative manager and two assistants (all of whom are untrained as practical miners). Under these the company has about 1,200 Chinese coolies working under their own headmen, and these coolies are paid through their headman the market price for their tin ore, subject to certain charges for machinery and management and for permission to work the land. These charges constitute the company's profit.

The company keeps a store and supplies the men with all goods and other necessities, debiting their accounts.

The company has recently imported some skilled Australian miners, but that is as yet an experiment whose results are not known. It smelts locally a small part of its ore, but most of it is brought to Singapore and sold to the Pulau Brani smelting works.

These works are on an island in Singapore harbor and are much the largest tin-smelters in the world. Excepting certain Indian gold mines, the Jelebu mining company is the only English mining company in all the East whose shares stand above par. There is, however, a Dutch company in the same position, which mines alluvial tin in the Netherlands Indies.

The quantity of tin exported from the Straits for the year 1891 was probably the largest export in the history of the trade.

The following figures show the number of tons exported during the last five years from the Straits:

	Tons.
1887	27,549
1888	29,169
1889	33,021
1890	31,976
1891	36,061

The shipments to the different countries show the following:

Country.	1890.	1891.
	*Piculs.**	*Piculs.**
United Kingdom	267,238	293,024
Austria	5,295	4,035
France	40,935	45,446
Germany	2,102	2,532
Holland	14,304	18,355
Italy	3,698	6,676
United States	118,243	163,647

* 1 picul=133⅓ pounds.

The imports of tin for the last five years from the native states into the three settlements were as follows:

Native states.	1887.	1888.	1889.	1890.	1891.
West Malay Peninsula:	*Piculs.*	*Piculs.*	*Piculs.*	*Piculs.*	*Piculs.*
Johore	69	30	38		
Kedah					37
Perak	232,426	211,775	228,610	202,949	181,720
Selangore	108,402	101,320	128,510	147,803	146,068
Sungie-Ujong	19,341	17,634	19,400	16,302	12,708
East Malay Peninsula	4,911	5,925	2,877	2,053	
Kelantan					1,060
Pahang					579
Patani					920
Singora					1,053
Tringgann					971
Siam, west coast	79,188	70,815	86,397	74,326	65,928

The above figures are exclusive of the tin ore imported, which amounted this year to over 123,000 piculs, of which Perak sent 60,500 piculs; Selangore, 43,500 piculs; and Sungie-Ujong, 16,500 piculs.

The colonial blue book for the quarter ended March 31, 1892, just out, shows an export to the United States of 41,189 piculs, valued at $1,611,517 (Mexican).

The tin mines of the Dutch, or Netherlands, Indies, situated on the islands of Banca and Billiton, south of Singapore, show a like increased output for the last year.

For the year 1891 Banca, which is owned and worked by the Dutch Government, mined 6,460 tons, the largest output in the history of the island; while Billiton, which is worked by a Dutch company, mined 5,645 tons, a decided increase over the previous years. Tin has also been discovered within the past few years at Singkep, on the island of Java, and a Dutch company has erected works and a smelter preparatory to testing its value.

It is thought by the practical miners that both the Dutch mines and the Straits mines have only been superficially prospected, and that the store of tin is simply inexhaustible. Within a month tin has been discovered at Johore, 14 miles from Singapore. It is now being prospected by the Sultan, and samples will be sent by him to the World's Fair.

At the date of writing the price of tin per picul is $40 (Mexican), or $672 (Mexican) per ton (about $450 in United States currency). During the past year it has been as high as $41.50 per picul, which high price, as I have said, has had a most favorable effect on the output. The average wages paid the Chinese miner is 50 cents (Mexican) per day.

None of this tin, whether going direct to the United States or indirect via London or Hongkong, is shipped in American bottoms, but entirely by English, Italian, and German steamers.

There is now some talk of an American line of steamers from San Francisco to Singapore and Batavia, and even under such circumstances very little difference, I think, would be made in the present means of shipment, as the freights across the continent from San Francisco would preclude the sending of tin that way.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, September 1, 1892.

RAILWAYS IN NATAL.

REPORT BY CONSULAR AGENT HOLLIS, OF DURBAN.

The first railway in Natal was a short line some 2 miles in length, from the docks at the "Point" to the center of the town of Durban, constructed by a private corporation and afterwards taken over by the Natal government and incorporated into the Natal government railway system. In the fall of 1880 the main line to Pietermaritzburg was opened for traffic, and during the succeeding twelve years it has been extended northward by successive stages, and has now reached the northern border of this colony, while a branch from the main line has its terminus in a neighboring State. Three hundred and ninety-nine miles of railways, all owned and worked by the Natal government, are now open for traffic.

The total length of railway lines open for traffic on December 31, 1891, was 375½ miles. The capital expenditure on the above was $22,036,689, and the net revenue for the year amounted to 4.4 per cent of the capital expenditure. The average interest paid by the colony on its railway account is 4 per cent per annum; the railways therefore earned during the year a sum sufficient to cover the whole working expenses and interest, and in addition contributed the sum of $93,163 toward the general revenue of the colony.

During the year 1891 the gross working expenditure amounted to 65 per cent of the revenue.

MANAGEMENT.

The management of the colonial railway system is vested in the general manager, who is appointed by the governor of the colony; he is also a member of the executive council. He is assisted by an assistant manager and by a number of district superintendents and traffic inspectors.

DIVISIONS OF THE RAILWAY SYSTEM.

The colonial railway system consists of five sections, viz:

(1) The "Main Trunk Line," connecting Durban and its docks with Pietermaritzburg, the capital of the colony; Ladysmith, a trading and woolen manufacturing town; Biggarsburg (Glencoe Junction); Newcastle, a trading town; and Charlestown, the northern terminus. Charlestown is a small hamlet close to the border of the South African Republic and about 130 miles distant from Johannesburg, the center of the South African gold fields. Passenger coaches, mule wagons, and ox wagons leave Charlestown daily with freight and passengers for Johannesburg and other towns in the northern and eastern districts of the Transvaal.

(2) The "Orange Free State Line," about 60 miles in length, leaving the Main Trunk Line at a point near Ladysmith, 191 miles from Durban, and running in a northwesterly direction, crossing the Drakenberg Mountains at Van Reenen's Pass, to the town of Harrismith, the principal trade center in the eastern part of the Orange Free State. Twenty-five miles of this line are in Orange Free State territory, but it was constructed under a convention, and is now operated by the Natal government.

(3) The "Dundee Branch," 7 miles in length, leaving the Main Trunk Line at Glencoe Junction, 231 miles from Durban, and running to the Dundee coal mines.

(4) The "North Coast Line," 19 miles in length, running from Durban northerly and parallel to the coast to the town of Verulam, the center of a large sugar-producing district.

(5) The "South Coast Line," 7 miles in length, running from South Coast Junction, a point on the main line 4½ miles from Durban, to the town of Isipingo, the center of another sugar-producing district.

FUTURE EXTENSIONS.

The freight traffic is the mainstay of the Natal railway system, and the trade with the interior states is the mainstay of the Durban importer. Large quantities of freight are carried over these lines to the different terminals, and from thence are transported to interior towns by ox and mule wagons. During the past year a total of 16,964 wagons—ox and mule—loaded at Ladysmith, Dundee, Newcastle, and Charlestown, taking away the following approximate tonnage to the states named:

	Tons.
South African Republic (Transvaal)	43,095
Orange Free State	6,882
Zululand	96
Swazieland	210
Points in Natal beyond railway terminals	609

The Cape ports have always been strong competitors for this inland or "Overberg" traffic, and are pushing Natal very close at present. Although the Cape ports are some hundreds of miles further from the gold fields than

Durban is, their railways have been greatly extended, and their Orange Free State line is now well over the northern border of the last-named country and is being rapidly pushed on through the Transvaal to Johannesburg and Pretoria. It has therefore become imperative for Natal to extend its railway system to the gold fields if the colony wishes to conserve its most remunerative traffic.

For many months the government of Natal has been negotiating with the Government of the South African Republic to secure the right of railway extension from Charlestown to Johannesburg; but it was not until the 23d of August, 1892, that anything definite was elicited from that Government. On the date named, however, the Volksraad (congress) of the South African Republic passed a resolution instructing the Government to have a survey of the proposed line made and to submit the result of such survey to the Volksraad at the next session, and, further, to enter into a provisional agreement with the government of Natal for the ultimate construction and operation of such line, said agreement to be also laid before the Volksraad at the next session. The Volksraad will meet again on or about May, 1893, and the whole question of railway extension from Charlestown will then be definitely settled.

It is confidently believed that in a year's time the work on this extension will have begun. Several local extensions of the railway through the agricultural districts of the colony are contemplated—

(1) A survey for an extension from Verulam, the terminus of the North Coast Line, to Stanger, 40 miles distant toward the north, has already been made, and an additional 30 or 40 miles beyond Stanger would bring the extension to the borders of Zululand.

(2) A survey for a line has also been made from Richmond Road, 51 miles from Durban on the Main Trunk Line, to the town of Richmond, 15 miles southwesterly from the point of departure from the main line. This line, when completed, will open up a rich agricultural district.

CONSTRUCTION.

All of these lines are constructed on a gauge of 3 feet 6 inches. Originally the line was laid with 40-pound iron rails; but these have since been replaced by steel rails of 45 and 61 pounds, and all new works and extensions are to be laid with 61-pound steel rails.

All of the lines are ballasted with broken rock, principally sandstone; the rails are laid in "chairs" on creosoted sleepers and are double spiked. All culverts and approaches throughout the line are substantially built of stone, and all girders are of wrought iron.

The first tunnel on the line is a short one, 70 feet in length, distant from Durban about 34 miles. The second and last tunnel is that at Langs Nek, about 300 miles from Durban; it is a straight tunnel 2,100 feet in length.

At the foot of the "Berg," below Langs Nek, are a series of reversing stations.

ROLLING STOCK.

Eighty-five engines of English pattern and manufacture are in use on the entire system, and during the past year they ran 1,527,483 miles, or about 17,970 miles, on an average, for each engine. Their total running expenses amounted to $370,748, or about 24 cents per train mile. The cost of repairs to all engines was $256,741, or about 16½ cents per train mile.

About three hundred cars of the English compartment type accommodate the passenger traffic on this system. All recent additions are either six-wheeled "flexible base" cars or eight-wheeled "bogie" cars that carry about fifty passengers each. All passenger cars are equipped with the automatic vacuum brake. All first-class, through-traffic passenger cars are provided with lavatories, one to each compartment. When sleeping accommodation is provided, but two passengers occupy each compartment, one bed being made up on each of the two seats.

The freight traffic is served by about fourteen hundred cars of all types, and about two-thirds of these cars are provided with vacuum brakes. All passenger and freight cars are of English manufacture.

The railway engineer in chief has recently returned from a professional visit to the United States, and has there seen many systems and details in railway construction, and in engine and car construction also, that can no doubt be adopted to advantage on the Natal lines.

The management of the Natal railway system is liberal and progressive, and many new ideas will probably be carried out in future extensions. It is understood that the management looks favorably toward the employment of American engines and rolling stock whenever an increased mileage or an augmented traffic will render an addition to the present plant necessary.

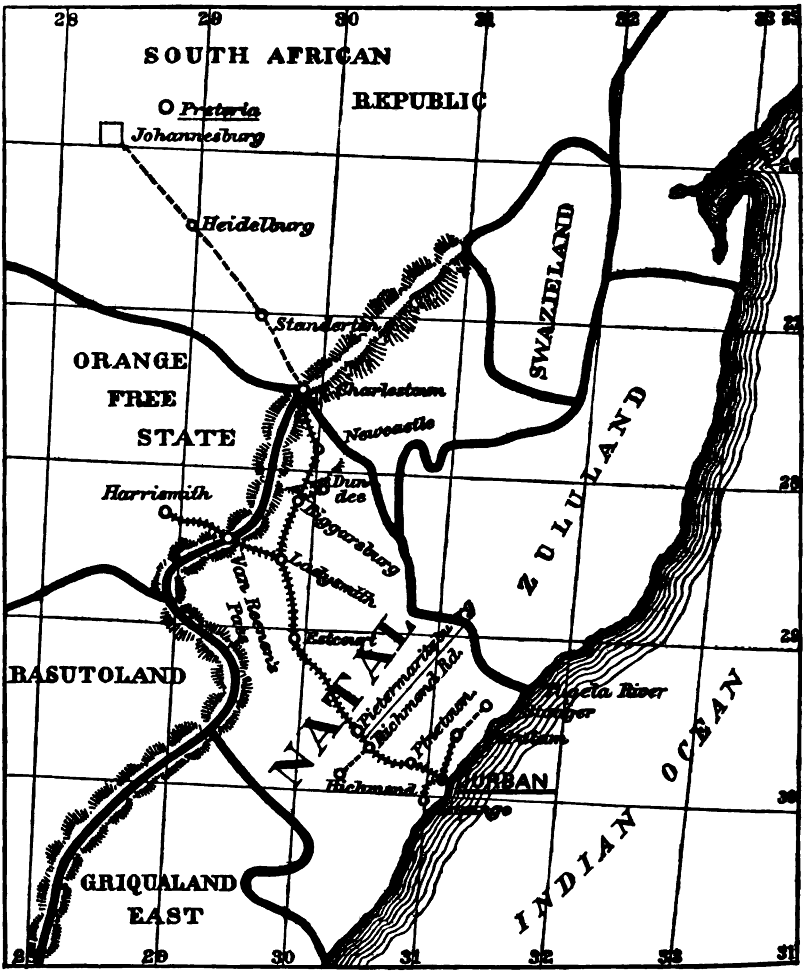
RAILWAY MAP.

A sketch map of Natal and the surrounding states, showing the present and proposed lines of the Natal railway system, is annexed.

PHYSICAL FEATURES OF THE NATAL RAILWAYS.

As might be expected in a country possessing the physical features of Natal, the gradients and curves are exceptionally severe. Out of the present total mileage not less than 30 miles are upon grades of 1 in 30 and 1 in 35, and curves of 300 to 350 feet radius, while on over 60 miles more there are grades under 1 in 60 and curves of less than 450 feet radius.

The Main Trunk Line reaches an altitude of 3,054 feet above the level of the sea at a point 58 miles distant from Durban. After falling 1,000 feet in its further progress to Pietermaritzburg, it again rises, 12 miles after leaving that city, to a height of 3,700 feet above the sea level. At a point 134 miles from Durban it has reached an altitude of 5,152 feet; but on reaching Ladysmith, 191 miles from Durban, the altitude has decreased to 3,284 feet. The summit of the Biggarsburg chain is crossed at a point 233 miles from Durban at a height of 4,600 feet; and when the terminus of Charlestown is



-┼┼┼┼┼┼- Natal Railways.

------ Proposed Lines.

reached, after crossing the western slope of the Drakenberg Mountains, the train will have again gained a higher eminence than ever, the altitude being about 5,400 feet.

The Orange Free State Line, after leaving Ladysmith, ascends by steep gradients the whole of its own course in Natal territory, and when it gains the border of the Orange Free State, on the summit of the more easterly point of the Drakenberg range, it is 5,591 feet above the sea.

As the result of experience, and in view of the great development that is taking place in South Africa, they are taking every possible means in their surveys to get lines with easier grades than the earlier lines, even at an enhanced first cost, it being found that the difficulties and expenses connected with working over steep gradients far outweigh the interest on the additional capital expenditure involved in obtaining better lines. They are also now providing for no lighter rails than 61-pound steel rails for all future extensions.

The rapid increase of traffic consequent upon the gold fields development taxed the resources of the department to the utmost, but the means now available enable the railway to convey 1,000 tons of through traffic daily from the "Point" (Durban docks) to the present terminals of the railway.

W. STANLEY HOLLIS,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Durban, September 10, 1892.

THE CONSULAR DISTRICT OF CATANIA.

REPORT BY ACTING CONSUL PERATONER.

The actual territory of this consular district embraces three provinces of the island of Sicily, namely, Catania, Syracuse, and Caltanisetta, the first two having a large extent of seacoast, while the last, the port of Terranova excepted, is an inland province.

The line of definition begins at the estuary of the Alcantara River, between Taormina, Giardini, and Calatabiano; and, surrounding Mount Etna, near the villages of Francavilla, Randazzo, Bronte, Cesaro, Troina, and Capizzi, joins the province of Caltanisetta at Gangi, where Villalba, Mussomelli, Canicatti, and Sammatino, with the River Salso, mark the boundaries; with all the seacoast on the south and east side of this district.

The extent and population of these three provinces are as follows:

Province.	Area.	Population.
	Sq. kilometers.	
Catania	5,102.19	495,000
Syracuse	3,697.12	230,000
Caltanisetta	3,768.27	266,000

The province of Caltanisetta has only one port in this consular district, since Licata, by the Executive order of May 19, 1888, was included in that of Palermo, and has only an inland commerce.

One railway line exists in central Sicily entirely in exercise. The new coast line from Syracuse to Caltanisetta is still in course of construction; it will probably be opened to public service very soon, and then Caltanisetta, chief city of the province, will be in direct communication with the seacoast at Terranova and have a regular export trade, the same as Syracuse has at present. Meanwhile Caltanisetta products do not appear in this consulate's returns, as they are sent to Licata as the nearest port, and are there either sold or directly exported, thus prejudicing the importance of this consular district

The province of Caltanisetta is a great center of commercial and agricultural interest. Sulphur is largely extracted; grain, almonds, filberts, seeds, and dry fruits are grown on a large scale, finding an outlet for export in the port of Licata. It is greatly to be regretted that the Catania consulate should not have that importance that it really deserves. As reported by the late United States consuls in this city, fully two-thirds of the entire production of Aderno, Paterno, and Biancavilla oranges are sent to Messina for export and wrongly declared in that consulate, thus shortening the annual export value of this province. If goods were properly declared, the true importance of this city would certainly be made clear, and the exportation to the United States, if not surpassing, would at least equal that of Palermo.

BRIMSTONE.

A really prosperous and rich article of export in this district is brimstone. It is largely exported to almost all civilized countries of the world where industries exist. There are in this province fully sixty-three sulphur mines, which in 1890 yielded 292,468 tons of mineral, valued at $637,613. Sulphur refineries exist only in Catania, to the number of thirteen, with an annual average production of 78,300 tons of refined and sublimated sulphur. In 1890 Catania exported 107,100 tons of brimstone, valued at $1,913,299, and 95,026 tons in 1891, valued at $2,094,584. The United States in both years took 13,771 tons, amounting to $266,257.

WINE.

Wine is another very important production in this district. In all national and foreign exhibitions Catania wines have been awarded the highest prizes, having been appreciated for their sweetness, long keeping, and total lack of acidity and sourness. Sundry are the varieties here produced, among which are to be noted the "Bosco," "Terreforti," "Siracusa," and the "Pachino," which, according to the soils, may be white or red, as well as light or strong.

Before the breaking of the commercial treaty with France wine export from this district was immense, while now, on account of the tariff war, the trade with that nation is greatly reduced.

To have an idea of the importance of wine production in this district, it is enough to bear in mind that the exportation from Catania alone represents the sixth part of the production of the whole Italian peninsula.

GREEN FRUITS.

Green fruits represent another article of great value in this district. They are largely exported to Austria, Germany, Russia, Great Britain, United States, Holland, etc. With the suppression of the duty on oranges and lemons in Austria-Hungary the export to that country has largely increased.

AMERICAN CEREALS.

The importation of American goods into this consular district is of no importance. A couple of petroleum shipments from Philadelphia is all the direct importation from the United States. If no shipments of wheat from the United States to Sicily take place, the reason is to be ascribed only to the fact that Sicilians employ for making bread and macaroni very hard and clear (transparent) wheat of first quality. No soft wheat or flour is consumed in the island, save for biscuits and confectionery, employing the "Majorca," or very soft flour. In no case is it a question of higher price preventing the introduction of American wheat in this island, as the best proof to upset this assertion is that from the Black Sea and East India, for a long space of years and with satisfactory results, only Taganrog and Bombay first quality hard wheat, and no Danubian or other Black Sea lower production, has been imported for Sicilian home consumption.

The actual rates for Taganrog wheat, first quality, are 250 lire, or $49.21, per ton.

By persistent trials there is no reason why a regular import trade of hard wheat with the United States could not be established, as is now the case with the Taganrog and Bombay wheat for this port and Messina.

IMPORTS AND EXPORTS.

Table showing imports into and exports from Catania by countries in 1890 and 1891.

Country.	Imports.		Exports.	
	1890.	1891.	1890.	1891.
	Lire.	*Lire.*	*Lire.*	*Lire.*
Great Britain	4,310,590	4,500,902	3,882,708	4,968,604
France	1,157,031	1,274,976	764,073	944,101
Germany	959,597	662,457	1,495,345	2,602,223
Austria	1,357,489	1,449,789	3,487,240	4,500,778
United States	940,450	762,669	2,460,929	2,830,482
Greece and Malta	242,281	267,348	1,961,104	1,604,699
Turkey	41,603	357,592	1,232,080	691,431
Russia	2,153,508	2,438,511	860,759	724,412
Spain	....	....	....	1,267,150
Holland	116,930	114,932	....	807,274
Italy	26,571,031	24,622,851	27,606,310	24,274,672
Other countries	716,235	1,064,392	2,070,739	2,364,410
Total	43,566,635	37,516,519	45,821,287	47,580,296

Table showing exports by articles from Catania in 1890 and 1891.

Articles.	1890.		1891.	
	Quantity.	Value.	Quantity.	Value.
		Lire.		*Lire.*
Brimstone ... tons...	107,100	9,566,495	95,026	10,472,980
Wine ... hectoliters...	529,318	20,098,259	562,498	17,992,482
Oranges and lemons ... tons...	34,659	6,239,198	26,493	4,759,377
Dry fruits ... do.....	2,382	2,939,577	4,591	7,278,731
Crude tartar ... do.....	112	145,161	49	49,160
Olive oil ... do.....	99	120,047	53	59,171
Licorice ... do.....	405	681,558	293	156,083
Alcohol ... do.....	318	166,125	280	135,378
Asphalt ... do.....	1,711	136,868	1,758	99,480

Table showing imports into and exports from Syracuse by countries in 1890 and 1891.

Country.	Imports.		Exports.	
	1890.	1891.	1890.	1891.
	Lire.	*Lire.*	*Lire.*	*Lire.*
Great Britain	163,693	38,775	536,946	705,211
France	10,709	5,688	69,776	19,456
Germany	28,583	28,512	267,102	200,381
Austria	229,657	195,551	949,162	669,376
United States	220,812	282,541	32,750	87,912
Malta	61,862	179,440	45,395	243,572
Turkey and Tripoli	....	....	14,618	....
Roumania	....	....	23,493	....
Belgium	....	....	34,951	....
Spain	....	....	64,745	....
Russia	561,640	364,699	....	....
Tunis	65,118	71,864	....	....
Brazil	72,545	....	....	....
Other countries	4,185	15,428	1,549,588	1,680,390
Total	1,418,804	1,129,428	3,588,526	3,606,298

TRADE WITH THE UNITED STATES.

Table showing the imports into Catania from the United States in 1890 and 1891.

Articles.	1890.	1891.
Coffee	296	....
Dyewood	....	546
Furniture	....	1,613
Hides	125,994	96,897
Machines	....	496
Petroleum	59,743	49,894
Suet	477	....
Sundries	336	1,067
Total	186,846	150,513

Table showing the exports from Catania to the United States in 1890 and 1891.

Articles.	1890.	1891.
Almonds	$36,662.07	$26,286.15
Anchovies	373.05	541.89
Argols	17,321.19	....
Asphalt	54,276.36	61,951.50
Brimstone	110,251.01	191,287.82
Canary seed	12,784.05	8,531.60
Filberts	28,865.16	28,005.40
Groceries	272.47	....
Lemons	130,839.90	303,862.71
Licorice	....	2,314.42
Marble	60.00	....
Mustard seed	4,774.04	1,821.10
Olives	847.31	....
Oranges	171,626.71	155,941.24
Pistachio nuts	824.62	1,468.64
Rags	18,911.66	18,953.83
Sulphur	6,365.25	5,021.25
Tomatoes, preserved, and pulses	455.40	....
Tomato sauce	....	421.30
Wine	1,031.25	....
Wine lees	3,330.46	6,231.53
Sundries	....	1,340.37
Total	619,871.96	813,980.75

NAVIGATION.

Table showing the navigation at the port of Catania during 1890.

ENTERED.

Flag.	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
Italian	722	554,440	1,851	59,583	2,573	612,023
Austrian	10	7,595	12	1,740	22	9,335
Greek	5	3,348	85	14,625	90	17,979
German	25	26,071	....	....	25	26,071
British	262	225,173	2	1,368	264	226,976
Others	49	40,870	22	2,338	71	43,208
Total	1,073	855,497	1,972	79,654	3,045	935,592

CLEARED.

Italian	721	551,656	1,817	53,897	2,538	605,553
Austrian	10	7,595	10	1,740	20	9,235
Greek	5	3,348	85	13,651	90	16,999
German	25	26,071	....	....	25	26,071
British	261	224,348	2	1,803	263	226,151
Others	49	40,870	22	2,338	71	43,208
Total	1,071	853,888	1,936	73,429	3,007	927,217

Table showing the navigation at the port of Catania during 1891.

ENTERED.

Flag.	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
Italian	802	589,273	1,874	70,280	2,676	659,553
Austrian	7	6,058	3	686	10	6,744
Greek	5	4,120	65	13,017	70	17,137
French	1	1,059	....	....	1	1,059
German	28	10,541	....	....	28	10,541
British	276	255,764	4	750	280	256,514
Others	59	29,033	12	2,437	71	31,470
Total	1,178	895,848	1,958	87,170	3,136	983,018

CLEARED.

Flag.	Steamers.		Sailing vessels.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
Italian	795	571,335	1,828	65,744	2,623	637,079
Austrian	7	6,058	3	686	10	6,744
Greek	4	3,136	68	15,197	72	18,333
French	1	1,059	....	....	1	1,059
German	28	10,542	....	....	28	10,542
British	274	263,279	4	750	278	264,029
Others	59	31,163	10	2,223	69	33,386
Total	1,168	886,572	1,913	84,600	3,081	971,172

AUGUSTUS PERATONER,
Acting Consul.

UNITED STATES CONSULATE,
Catania, September 7, 1892.

TOBACCO IN SUMATRA.

REPORT BY VICE-CONSUL THÉVENOT, OF PADANG.

In reply to Department instruction of July 12, I would be most happy to give the desired report on the tobacco industry in Sumatra, but I am sorry to be obliged to reply that on this coast the tobacco industry is not worth speaking of, as it is limited to the wants of local consumption.

The east coast of Sumatra is the great export field for Sumatra tobacco, but I have no information concerning it, as the tobacco is shipped from there direct via Singapore to Holland. The United States consul at Singapore, I feel confident, will be able to give better information, as Deli people frequently visit Singapore and as the owners or directors of several tobacco estates reside there.

I transmit herewith a copy of a letter from this consulate of April 9, 1886, addressed to the legation of the United States at the Hague.

G. P. Q. E. THÉVENOT,
Vice-Consul.

UNITED STATES CONSULATE,
Padang, August 29, 1892.

MR. EILBRACHT TO THE AMERICAN LEGATION AT THE HAGUE.

[Inclosure in Vice-Consul Thévenot's report.]

PADANG, *April 9, 1886*.

On our coast nothing of importance is done in the cultivation of tobacco. Some tobacco grown by natives is of inferior quality and finds its outlet exclusively in the Straits.

Some Belgians who had been engaged in the cultivation of tobacco in America for some time made a trial in our vicinity last year, but the enterprise failed, owing to the impossibility of drying the tobacco in the rainy season. Therefore, Deli and its suburbs remain the only district in Sumatra which by its tobacco cultivation may have some influence and interest for American planters.

The following information about the Deli district is from an acquaintance of mine who has been engaged in the cultivation there until recently.

As to the extent of land at present under cultivation, I could not get exact information; but, including the different large companies, there are in all in Deli and suburbs (Sedang, Langkat, and Batoe Bahra) about 100 estates varying in size from 500 to 10,000 bouws (1 bouw=7,096.5 square meters). The ground, however, allows only one crop; it must then be left fallow for eight or ten years.

Deli itself is now nearly exhausted, and planters have already begun to seek new grounds either north or south.

It is very difficult to give a precise answer as to the extent of available land, as time must prove if the land south and north of Deli is suitable for cultivation. The Deli Maatschappy and Nacher & Grob, for example, had each purchased about 5,000 bouws of land at Padang Boelan, near Deli, and cultivated tobacco thereon in 1884; but this tobacco contained salt and was not fit for fermenting, so these enterprises had to be abandoned.

The value of the land is a trifle.

Deli is not a Dutch possession, but only a Dutch protectorate. The planter can not buy land; but he can hire it, and has to make an agreement with the native authorities, to whom he pays $1,000 or so for 1,000 bouws. He must then have his contract (which ordinarily is made for ninety-nine years) ratified by the Sultan and the authorities of the Dutch Government, paying to the Sultan a yearly rent of 1 florin per bouw.

The quantity produced, of course, depends upon the quality of the ground, as well as the state of weather to which the crop is exposed.

Thick tobacco is heavy and fine tobacco light, but the difference in weight is generally balanced by the difference of prices; 10 piculs (1 picul=133⅓ pounds) per bouw will be about the average.

The cost of production is according to the situation of the land. In the vicinity of Laboean Deli 1 pound of the tobacco costs the planter, in Amsterdam, about 75 cents; a planter in Serdang or Boven Langkat will have 20 to 25 cents more expenses per pound, but, as Deli tobacco fetches an average of $1.45 per pound, the results are in any case very favorable.

In the beginning of January the coolie begins to prepare the ground, each coolie receiving about three-fourths of a bouw for cultivation. In three months they ought to be ready for planting, and they only await the first rains to do so. The young plants, which have meanwhile been grown, are then stuck in the ground at a distance of 2 by 3 feet from each other. The grown plant is topped, according to the quality of the ground, at twelve to twenty-two leaves (the two lowest leaves are never counted), and in about three months from the period of planting the plant is ripe, cut at its base, and dried on the stick in drying sheds, which contain about 60,000 plants. As soon as dry the leaves are taken off the stick, put in bundles of fifty, and brought to the fermenting shed. After the first process of fermenting the leaves are assorted in lengths and then again put in fermentation; this second process finished, the bundles are again opened and assorted carefully in colors and quality. This finished, new staples are built with them, and then the tobacco awaits its turn to be pressed in bales weighing 80 kilograms net and to be shipped.

I give the assortment in colors and quality as it is used by Deli Maatschappy.

The assortment of leaves is as follows:

D—dark brown, fine leaves, oily.
DV—dark fallow, fine leaves, oily.
B—brown, fine leaves, oily.
B—brown, fine leaves, less oily, a little dry.
V—fallow, fine leaves, oily.
V—fallow, fine leaves, less oily, a little dry.
L—light brown, fine leaves, less oily, a little dry.
OB—colored leaves, dark, fine, oily.
BS—colored leaves, spotted.
BB—somewhat thick leaves, dry.
G—thick leaves, dry.
S—somewhat spotted, dark and brown, fine, oily.
SL—somewhat spotted, light colored, fallow.
SS—much spotted or very dry leaves.
K—rotten tobacco.

The assortment of broken leaves is as follows:

XB—not much broken, dark colors, oily leaves.
XL—not much broken, light, oily leaves.
XS—not much broken, somewhat spotted, dark colors, oily.
XSS—not much broken, much spotted, or not oily.
X—very much broken, all colors, not spotted.
XK—not much broken, rotten tobacco, dead leaves.

All the marks are again assorted in Nos. 1, 2, 3, and 4 to indicate first, second, third, and fourth lengths, with the exception of the mark "XK," which is not assorted in length.

Your obedient servant,

H. EILBRACHT.

Sonora and Lower California.—The rains this season have been very scant in the immediate vicinity of Guaymas, but in the country, where most needed for agriculture, they have been sufficient to insure a good crop, and the prospects are that there will be a good harvest of corn, cotton, etc. In Lower California, across the gulf from here, where it seldom rains at all, they have had two very heavy downpours, which have done much damage to the French company which owns and works the great copper mine "El Bolio," near Santa Rosalia. The irrigating enterprise on the rivers Yagui and Mago, of which Charles Connant is the head man, has just received from the United States a large amount of machinery for dredging to facilitate the opening of the water canals. The machinery will be put up at once and the work pushed to completion, thereby adding a very large and valuable agricultural district to this portion of the country. The cotton factory at Los Angeles, some 125 miles inland, is commencing operations and hopes soon to be able to supply the wants of this State and have a surplus of common cotton cloth for export to other States of the Republic.—CHARLES E. HALE, *Vice-Consul, Guaymas, October 4, 1892.*

BRITISH EXPORTS TO THE UNITED STATES.

REPORT BY CONSUL-GENERAL NEW, OF LONDON.

Table showing the value of declared exports from the United Kingdom to the United States during the quarter ended June 30, 1892.

Articles.	Belfast.	Birmingham.	Bradford.	Bristol.
Animals		$389.32		
Books				$5,283.46
Bricks and tiles		23,940.83		2,639.45
Buttons		16,273.19		
Card clothing			$21,546.00	
Carpets		22,372.58	14,003.35	
Cement				158.40
Cocoa and chocolate				3,989.09
Colors, paints, and varnishes				2,768.62
Cotton manufactures	$165,919.04	5,621.67	195,298.03	
Cycles		367,422.50		
Drugs and chemicals		64,187.62	915.22	7,697.21
Elastic		807.97		359.42
Fuller's earth				1,985.71
Glass, china, and earthen ware		57,899.62		
Glue and gelatin		5,135.18		2,531.11
Grease			1,356.31	
Hair (cow, calf, etc.)			3,689.13	
Hardware		206,713.49		
Hemp, flax, and tow	94,813.94			
Leather			6,551.97	
Linens	1,465,972.25			
Machinery	9,896.45		74,009.35	
Metals:				
Iron and steel and manufactures		124,572.50		
Other		13,575.92		11,829.56
Ores (iron, etc.)			61,587.16	
Paper and paper hangings			1,726.22	
Preserves, pickles, etc		9,913.06		2,526.58
Rope	25,266.57			1,005.04
Saddlery		49,183.64		
Seeds, plants, etc	2,789.79			1,860.76
Shells		13,664.49		
Silks			27,023.15	
Skins, furs, etc		48,882.30		27,365.86
Stationery	5,885.53	36,340.00		
Stuff goods			1,190,660.85	
Stone (marble, granite, etc.)				134.02
Thread	36,815.52			
Tin plates		1,673.82		12,876.52
Unions	64,411.60			
Wines and spirits	4,025.99			1,424.25
Wool and camel and goat hair			176,415.10	
Woolen and worsted goods			1,120,864.05	23,726.25
Yarn			92,988.04	7,259.59
All other articles	57,308.20	85,574.07	10,915.20	4,092.00
Total	1,933,104.88	1,154,143.77	2,999,549.13	121,512.90
Total in 1891	1,692,942.81	1,132,551.22	2,862,650.15	239,980.54
Increase	240,262.07	21,592.55	136,898.98	
Decrease				118,467.64

Table showing the value of declared exports from the United Kingdom, etc.—Continued.

Articles.	Cardiff.	Cork.	Dublin.	Dundee.
Animals			$1,532.95	
Bags and bagging			170.33	$6,257.68
Beer, ale, and stout		$2,731.73	146,198.95	
Books			827.71	
Bricks and tiles	$601.00			
Burlaps				1,356,582.41
Carpets				8,943.70
Coal and coke	74,396.87			
Colors, paints, and varnishes	771.55			
Cotton manufactures		424.36		
Drugs and chemicals		207.80		
Feathers		5,849.96	18,468.75	
Fish		8,881.85		838.54
Glass, china, and earthen ware				2,087.51
Gloves, hosiery, etc.			512.32	
Glue and gelatin			2,184.23	
Hemp, flax, and tow				12,461.83
Leather				22,602.57
Linens				489,283.45
Machinery				311.42
Metals (iron and steel and manufactures)	7,149.10			
Ores (iron, etc.)				820.80
Paper and paper hangings				11,660.80
Paper stock				34,495.07
Saddlery			519.03	
Skins, furs, etc.			16,492.87	627.08
Stone (marble, granite, etc.)		481.73		95,971.02
Tin plates	617,578.35			
Wines and spirits		320.55	12,972.23	1,239.99
Woolen and worsted goods			13,111.37	9,057.46
Yarn				48,124.74
All other articles	911.55		4,986.06	8,296.87
Total	701,408.42	18,897.98	217,976.80	2,109,662.94
Total in 1891	5,890,519.19	12,020.74	235,057.43	2,508,374.52
Increase		6,877.24		
Decrease	5,189,110.77		17,180.63	398,711.58

Articles.	Dunfermline.	Falmouth.	Glasgow.	Huddersfield.
Animals			$190.00	
Beer, ale, and stout			1,093.65	
Books			1,738.30	
Bricks and tiles			10,149.17	$949.40
Card clothing				2,584.08
Carpets			24,168.15	
China clay		$32,324.25		
Coal and coke			46,367.63	
Colors, paints, and varnishes			2,046.88	
Cotton			74,932.94	
Manufactures	$16,472.98		154,266.80	38,831.32
Drugs and chemicals		7,885.64	99,698.97	22,239.76
Fish			16,665.26	
Floor cloth	8,098.60			
Fuller's earth				1,222.96
Glass, china, and earthen ware			2,570.99	
Glue and gelatin				146.35
Grease				10,425.65
Hats			8,430.43	

Table showing the value of declared exports from the United Kingdom, etc.—Continued.

Articles.	Dunfermline.	Falmouth.	Glasgow.	Huddersfield.
Hemp, flax, and tow			$126,434.74	
Jute				$919.83
Laces			96,572.65	
Leather				390.28
Linens	$382,741.07		14,306.70	3,258.96
Machinery			25,012.33	2,538.67
Metals (iron and steel and manufactures)			100,228.88	1,373.98
Paper and paper hangings			3,863.37	
Paper stock			19,013.01	6,802.48
Provisions (cheese, bacon, etc.)			1,499.25	
Seeds, plants, etc			1,032.01	
Silks			10,835.02	6,382.44
Skins, furs, etc			32,764.55	
Stuff goods				3,312.90
Stone (marble, granite, etc.)		$121.66	2,771.64	
Sugar			40,941.82	
Thread			77,151.94	
Unions			7,610.62	
Wines and spirits			3,798.27	
Wool and camel and goat hair			78,381.03	9,695.14
Woolen and worsted goods			6,912.78	597,275.30
All other articles	923.43		78,309.78	897.97
Total	408,236.08	40,331.55	1,169,719.56	709,247.47
Total in 1891	326,917.26	17,422.38	1,002,836.37	721,108.57
Increase	81,318.82	22,909.17	166,883.19	
Decrease				11,861.10

Articles.	Hull.	Leeds.	Leith.	Liverpool.
Animals				$14,969.35
Beer, ale, and stout			$14,076.25	19,699.59
Books			15,661.94	2,359.86
Bricks and tiles		$28,795.14		7,698.80
Carpets			338.35	
Cement				49,190.58
Chalk	$806.01			
China clay				9,295.02
Coal and coke				31,705.24
Colors, paints, and varnishes	13,235.07			10,862.03
Confectionery		4,458.89		
Cotton				96,443.40
Drugs and chemicals	2,775.59	15,940.48	7,654.32	1,676,447.83
Fish			492.12	4,997.90
Floor cloth				22,089.04
Fruits, nuts, and vegetables	3,051.76			71,819.80
Fuller's earth		5,549.68		
Furniture				1,640.01
Glass, china, and earthen ware			316.73	62,325.27
Glue and gelatin			48,676.35	
Grease		254.76		50,227.15
Hair (cow, calf, etc.)	3,230.15			
Hardware				21,835.95
Hemp, flax, and tow	4,191.10			38,459.95
Leather	1,716.91	5,553.75		
Machinery	123.87		624.77	3,158.35
Metals:				
Iron and steel and manufactures	10,062.13	31,577.54		295,226.22
Other				29,299.00

Table showing the value of declared exports from the United Kingdom, etc.—Continued.

Articles.	Hull.	Leeds.	Leith.	Liverpool.
Oils	$422.61		$329.63	
Ores (iron, etc.)				$21,597.53
Paper and paper hangings			704.33	
Paper stock	1,784.34		3,770.50	106,819.41
Pitch and tar	1,048.98			1,805.47
Provisions (cheese, bacon, etc.)			347.87	2,131.53
Rice				92,405.11
Rope	2,987.78			
Rubber, raw				362,076.33
Saddlery	153.90			3,825.07
Salt				108,819.81
Seeds, plants, etc		$1,651.41		9,158.75
Skins, furs, etc		26,634.11		318,854.49
Spices				7,494.41
Stationery		719.09		
Stone (marble, granite, etc.)	3,423.85		600.28	3,222.15
Sugar				56,052.35
Tea				28,928.71
Tin plates				2,454,959.46
Wines and spirits			4,170.24	1,693.54
Woods			8,837.20	37,462.31
Wool and camel and goat hair	10,795.85	67,934.86	10,940.66	265,326.45
Woolen and worsted goods		142,898.67	26,972.15	7,416.55
Works of art			2,038.09	
Yarn		1,822.89		
All other articles	13,143.66	1,203.97	10,454.11	44,143.83
Total	72,953.56	334,995.24	157,005.89	6,653,233.60
Total in 1891	67,681.35	471,715.91	156,788.53	11,808,313.22
Increase	5,272.21		217.36	
Decrease		136,720.67		5,155,079.62

Articles.	Manchester.	Newcastle.	Nottingham.	Plymouth.
Animals				$350.12
Antimony		$30,023.63		
Books		707.22		
Bricks and tiles		4,384.05		
Brushes, tooth and hair				$97.34
Buttons	$1,347.49			
Card clothing	29,814.25			
Carpets	16,667.72	6,976.07		
Cement		10,264.44		
China clay				51,800.17
Coal and coke		21,484.42		
Colors, paints, and varnishes		4,671.25	$33,557.32	
Cotton manufactures	937,055.47	34,397.39	38,251.61	
Cycles			36,552.90	
Drugs and chemicals	142,266.74	63,999.53	1,124.15	16,022.02
Elastic	19,359.11		48,581.23	
Glass, china, and earthen ware			6,609.69	
Gloves, hosiery, etc	28,339.64		141,764.50	
Hair (cow, calf, etc.)	9,852.21			
Hats	2,707.16			
Laces	106,107.87		825,188.25	
Leather		4,006.30	12,715.18	
Linens	297,871.66	1,514.55	34,025.24	
Machinery	383,953.02	551.13	87,226.65	
Metals (iron and steel and manufactures)	52,885.79	22,920.68	2,957.48	

Table showing the value of declared exports from the United Kingdom, etc.—Continued.

Articles.	Manchester.	Newcastle.	Nottingham.	Plymouth.
Paper and paper hangings	$43,178.98			
Paper stock	189,574.69			
Rope		$1,306.15		
Rubber clothing and manufactures	7,584.12			
Silks	33,189.61		$23,332.25	
Skins, furs, etc	44,688.54	52,264.87	146,639.19	$6,456.88
Stationery			344.94	
Stone (marble, granite, etc.)		15,291.98		1,443.10
Thread		386.74		
Wearing apparel			5,006.00	
Wines and spirits				3,435.55
Wool and camel and goat hair	28,801.57			
Woolen and worsted goods	50,337.57	2,746.59	22,698.24	402.30
Yarn	206,691.51			
All other articles	103,416.53	2,967.26	19,947.22	117.46
Total	2,735,691.25	280,864.25	1,487,521.98	80,604.94
Total in 1891	2,731,892.71	420,903.37	969,365.16	74,547.46
Increase	3,798.54		518,156.82	6,057.48
Decrease		140,039.12		

Articles.	Sheffield.	Southampton.	Swansea.	Tunstall.
Animals	$223.86			
Beer, ale, and stout				$362.07
Books				806.37
Bricks and tiles			$3,638.71	11,170.73
Coal and coke			62,947.27	
Colors, paints, and varnishes				4,481.80
Cotton manufactures				347.47
Cutlery	161,036.79			
Drugs and chemicals	5,259.14		24,025.95	
Furniture		$486.65		
Glass, china, and earthen ware				884,147.43
Glue and gelatin	15,067.08			
Hair (cow, calf, etc.)	2,670.26			
Hardware	23,860.41			694.70
Linens	5,683.73			
Machinery	540.77			
Metals:				
Iron and steel and manufactures	332,674.40		53,552.01	
Other	1,592.89		5,903.36	
Paper and paper hangings				2,188.73
Shells	6,269.02			
Skins, furs, etc	30,034.82	11,412.00	7,317.87	
Stone (marble, granite, etc.)			2,930.54	
Tin plates			2,108,322.33	
Wines and spirits	285.53			
All other articles	10,596.67	461.00	88.24	2,756.07
Total	595,794.37	12,359.65	2,268,726.28	906,955.37
Total in 1891	545,574.15	24,023.49		1,010,432.63
Increase	50,220.22		2,268,726.28	
Decrease		11,663.84		103,477.26

Table showing the value of declared exports from the United Kingdom, etc.—Continued.

Articles.	London.	Total.	Total in 1891.
Animals	$73,055.90	$90,671.50	$169,270.34
Antimony	78,555.04	108,578.67	105,935.20
Artificial flowers	4,739.97	4,739.97	3,924.18
Bags and bagging	41,180.32	47,608.33	62,109.15
Beer, ale, and stout	146,184.79	330,347.03	341,304.55
Blacking	9,776.80	9,776.80	7,044.14
Books	470,400.76	497,785.62	557,302.02
Bricks and tiles	16,420.00	110,387.28	114,310.13
Bristles	21,735.01	21,735.01	54,861.16
Brushes, tooth and hair	6,979.15	7,566.49	11,999.94
Burlaps	....	1,356,582.41	1,696,203.04
Buttons	2,640.10	20,260.78	4,496.70
Card clothing	....	53,944.33	52,266.40
Carpets	28,180.25	121,650.17	102,545.28
Cement	407,864.12	467,477.54	673,889.13
Chalk	10,070.00	10,876.01	22,218.87
China clay	....	93,419.44	71,024.32
Clocks and watches	8,815.16	8,815.16	12,247.27
Coal and coke	12,825.16	249,726.59	333,172.27
Cocoa and chocolate	58,160.70	62,149.79	214,769.79
Coffee	119,465.15	119,465.15	58,273.43
Colors, paints, and varnishes	139,580.73	211,975.25	165,219.39
Confectionery	5,670.16	10,129.05	18,540.18
Cotton	....	171,376.34	274,908.76
Manufactures	29,816.47	1,616,702.61	1,429,685.21
Cutlery	3,170.00	164,206.79	105,787.57
Cycles	36,510.64	440,486.04	354,772.96
Drugs and chemicals	542,260.01	2,900,597.98	2,912,301.56
Elastic	281.01	69,388.74	53,040.23
Emery	5,028.61	5,028.61	9,961.11
Feathers	169,161.16	193,479.87	86,237.04
Fish	31,729.15	63,604.82	20,612.53
Floor cloth	28,272.01	58,459.65	62,350.51
Fruits, nuts, and vegetables	54,890.10	129,761.66	235,690.07
Fuller's earth	16,310.17	25,068.52	9,696.73
Furniture	25,167.05	27,293.71	5,212.58
Glass, china, and earthen ware	24,210.50	1,040,167.74	1,180,403.66
Gloves, hosiery, etc	36,405.10	207,021.56	184,833.41
Glue and gelatin	39,001.60	112,741.90	105,663.61
Grease	7,030.01	69,293.88	35,579.07
Gums	87,105.03	87,105.03	59,782.95
Hair (cow, calf, etc.)	29,525.15	48,966.90	61,566.70
Hardware	5,155.00	258,259.55	130,051.26
Hats	13,110.15	24,247.74	33,195.09
Hemp, flax, and tow	408,060.05	684,421.61	930,784.26
Indigo	42,565.01	42,565.01	6,943.18
Ivory	31,810.15	31,810.15	42,905.71
Jute	20,001.65	20,921.48	2,788.10
Laces	890.15	1,028,758.92	556,977.45
Leather	162,551.05	216,088.02	215,413.88
Linens	17,821.30	2,712,478.92	2,138,163.88
Linseed	....	....	23,696.51
Machinery	15,320.00	603,266.78	744,807.26
Matches	10,021.50	10,021.50	4,924.88
Metals:			
Iron and steel and manufactures	79,360.00	1,115,540.65	1,373,264.38
Other	110,743.01	172,842.74	192,841.74
Mustard	60,531.02	60,531.02	60,474.59
Oils	45,002.03	45,753.27	60,314.84
Ores (iron, etc.)	3,530.10	87,535.59	32,772.08
Paper and paper hangings	53,160.15	116,482.58	85,442.26

Table showing the value of declared exports from the United Kingdom, etc.—**Continued.**

Articles.	London.	Total.	Total in 1891.
Paper stock	$112,000.15	$474,269.65	$426,419.47
Perfumery	8,915.06	8,915.06	16,972.93
Pitch and tar	19,601.50	22,455.95	70,947.08
Plumbago			27,198.25
Precious stones	902,721.05	902,721.05	1,005,596.10
Preserves, pickles, etc	106,420.16	118,859.80	171,624.24
Provisions (cheese, bacon, etc.)	36,020.16	39,998.81	35,700.92
Quicksilver	20,460.19	20,460.19	
Rice	6,080.15	98,485.26	227,571.05
Rope		30,565.54	1,311.00
Rubber:			
Raw	163,430.05	525,506.38	586,302.20
Clothing and manufactures	7,050.19	14,634.31	14,649.89
Saddlery	27,520.06	81,201.70	84,691.27
Salt	1,925.01	110,744.82	132,563.27
Sausage casings	31,075.17	31,075.17	10,550.93
Scientific and optical instruments	25,179.15	25,179.15	32,149.74
Seeds, plants, etc	40,916.15	57,408.87	191,026.58
Shellac	44,140.17	44,140.17	145,469.70
Shells	220,829.00	240,762.51	132,986.82
Silks	73,660.17	174,422.64	270,563.59
Soaps	60,240.16	60,240.16	58,678.41
Skins, furs, etc	1,817,820.64	2,587,656.07	869,778.51
Spices	106,205.16	113,699.57	208,173.34
Sponges	18,410.65	18,410.65	24,943.42
Stationery	58,615.01	101,904.57	116,046.49
Sticks and canes	9,770.16	9,770.16	8,542.80
Straw plait and braids	63,590.10	63,590.10	70,701.54
Straw manufactures	5,640.03	5,640.03	3,866.86
Stuff goods		1,193,973.75	1,139,953.58
Stone (marble, granite, etc.)	35,369.15	161,741.12	122,010.14
Sugar		96,994.17	141,683.49
Tea	169,630.14	198,558.85	106,967.99
Thread		114,354.20	210,297.27
Tin	1,304,020.00	1,304,020.00	497,012.08
Tin plates	27,073.01	5,222,483.49	12,865,877.18
Tobacco and cigarettes	30,150.61	30,150.61	17,702.06
Unions	855.00	72,877.22	75,124.69
Wearing apparel	40,701.15	45,707.15	37,116.34
Wines and spirits	83,900.15	117,266.29	72,331.28
Woods	157,360.00	203,659.51	36,007.32
Wool and camel and goat hair	1,415,920.06	2,064,210.72	2,030,475.00
Woolen and worsted goods	320,045.01	2,344,464.29	1,906,515.12
Works of art	36,150.00	38,188.09	50,488.56
Yarn	1,001.05	357,887.82	721,604.55
All other articles	659,436.88	1,120,948.03	972,874.05
Total	12,177,652.01	39,348,149.87	
Total in 1891	9,702,222.36		44,625,841.52
Increase	2,475,429.65	6,004,620.58	
Decrease		11,282,312.23	

JOHN C. NEW,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
London, November 1, 1892.

FOREIGN TRADE OF SALVADOR.

REPORT BY VICE-CONSUL DAWSON, OF SAN SALVADOR.

I have to report that, according to an official statement published to-day in the Government's daily, this country imported goods to the amount of $685,577.29 during the second quarter of this year. The exportations for the same period reached $2,295,718.20.

There has been a falling off in both the imports and exports compared with the first quarter to the amount of $98,661.05 in the former and $587,775.29 in the latter.

The chief commercial movement has been as follows:

Countries.	Imports.	Exports.
United States	$200,240.20	$1,270,659.80
Great Britain	228,897.28	246,939.00
Germany	63,398.76	214,276.20
France	112,527.95	281,073.25
Italy	19,149.96	139,484.70

The following is a comparative statement of the articles imported from the United States, England, France, and Germany:

Table showing the value of the principal articles imported during the second quarter of 1892.

Articles.	United States.	England.	Germany.	France.
Cotton:				
Thread	$1,107.30	$5,071.27	$29.00	$1,171.30
Cloth	13,843.60	147,998.42	6,907.78	36,414.90
Articles free of duty	52,140.48	10,431.22	3,890.51	655.70
Beer	4,578.31	695.31	3,782.00	196.00
Glassware	483.13	57.52	1,201.63	827.04
Food stuffs	9,230.12	3,869.99	2,282.02	2,077.14
Drugs and medicines	8,931.39	2,740.51	2,534.08	7,768.95
Hardware	7,256.72	13,247.68	8,186.56	1,402.06
Flour	56,653.93			
Woolen stuffs	624.00	10,179.40	2,038.96	6,727.97
Furniture	4,221.54	394.20	1,597.38	1,345.18
Machinery	6,802.32	3,789.81	31.34	741.08
Silks	5,944.70	2,730.19	346.00	4,114.92
Perfumery	75.00	61.86		1,096.02

GUILLERMO J. DAWSON,
Vice-Consul.

UNITED STATES CONSULATE,
San Salvador, October 5, 1892.

FROZEN-MEAT INDUSTRY OF AUSTRALASIA.

REPORT BY COMMERCIAL AGENT BAGGS, OF NEWCASTLE.

I herewith transmit a series of articles on the frozen-meat question in this colony, taken from the Sydney Morning Herald. These articles deal with the history of this industry, with a description of the different works now in existence, and also with the question of freezing versus chilling.

The frozen-meat question is one of the greatest importance to this colony, and will undoubtedly be of great assistance in restoring her former prosperity, as it did that of New Zealand.

I dealt with this subject to some extent in my report on the sheep and wool industries of New South Wales. The industry, however, is gradually growing, and Australian frozen meat will soon be an active competitor for a large share of the English market.

GEORGE T. BAGGS,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Newcastle, October 7, 1892.

THE FROZEN-MEAT QUESTION.

[Inclosure 1 in Commercial Agent Baggs's report.—From the Sydney Morning Herald.]

All the indications go to show that we are on the eve of a "boom" in the chilled and frozen meat industry. The average unit of the community takes up his morning paper only to find its correspondence columns full of letters from people who are furiously in earnest on the subject and in vigorous controversy with each other. In the telegraphic columns he finds continual mention of the fact that companies have been projected or successfully floated in country towns north, west, and south of the metropolitan center. The advertising columns in the same way bristle with announcements to a similar purport and with prospectuses of companies to be formed; and every now and then we are reminded by the returns and reports from various quarters in New South Wales and Queensland that the industry is not on paper only, but is actually in operation. Ships are leaving regularly for England with cargoes of frozen meat grown on Australian pastures and prepared for export by Australian enterprise, and regular sales of country killed and chilled meat are held for the benefit of the local consumer at the metropolitan meat markets leased by Mr. Robert Hudson. The industry has really started almost unawares, though it is still in its infancy, with abundant possibilities before it of expansion and profit to all concerned. It is now in an interesting stage, and one particularly favorable for observation; for the beginnings have been made and the enterprise is well launched, while the great plunge is just on the point of being taken. There are two points of view from which this industry presents features of interest—that of the local consumer and that of the exporter. If we take the whole subject under these two general headings, watch Australian beef and mutton from their pastures to the hands of the local consumer or the freezing chambers of ocean-going steamships, and so on to the London market, and follow the routes over which the sheep and cattle pass, with an eye to the conditions under which they travel, as well as the process by which the meat is prepared for market; if we then look into the comparative figures of the subject and the prospects of the trade, after estimating its effect on the quality of the meat supply of the metropolis and on the pastoral industry of the country, those who appreciate the magnitude of this question will have the facts of the case before them, and so be able to form their own conclusions as to the gravity of the issues involved in this very important question of the chilling and freezing of Australian-grown meat. With a view to collecting material to aid readers of the Herald to do all this, I have visited certain of the districts where the sheep and cattle are pastured and the establishments where the processes of chilling and freezing are carried on, observed at first hand the various stages of the business, and talked on the spot with the people interested in carrying the industry on and administering its business in the various departments; and I propose in this and the following articles to give the reader the benefit of my experiences and information as I gathered them.

The industry has already a sort of history of its own, although it is only twelve years old at the outside. It had its origin, it is hardly necessary to say, in the demand for a market for Australian sheep. We have never been very scientific in our sheep farming in this part of the world, the great exceptions of course, to a general remark like this only proving the rule. Experts will freely admit that the pastoral enterprise has in many cases been little more than a kind of speculation, depending on all manner of risks from insecure tenures and bad seasons. The squatter overstocked to get the utmost profit out of a good season, and he saw his sheep die by scores of thousands when a prolonged drought dried up his water holes and burned his grass lands into a desert of brown soil.

A writer in the correspondence columns of the Herald the other day mentioned that we must export 5,000,000 sheep annually to keep our numbers within reasonable limits, contending that the colony is overstocked under the present reckless want of system. The results of this state of things have made themselves familiar in our ears by constant description season after season as soon as the rains begin to fail, and the melancholy story of wholesale starvation and depreciation of values is worn threadbare by repetition. Those who have read the history of the pastoral industry will recall a parallel crisis when the Bank of Australia broke in 1843 after an era of exceptionally active speculation in sheep and cattle. Dr. Lang describes how sheep were sold under the sheriff's hammer for 6*d.* per head during the depression, and among other instances he gives one of a mob of cattle purchased for 6 guineas a head, which only brought 7*s.* 6*d.* at sale. It was at the very crux of this crisis that O'Brien, the Yass grazier, discovered that sheep worth 6*d.* per head under these circumstances could be boiled down to produce 5*s.* worth of fat.

It is not at all likely that the frozen-meat trade will have anything like a proportionate effect on the present prospects of the pastoralists, but the principle is the same. Given the right kind of mutton-producing sheep, an effective system of export, and a fair chance on the London market, the grazier may fairly look to this industry to help him out of the difficulties in which bad seasons and a variety of other causes may conspire to place him. The first experimental effort in this direction was made on a modest scale. Four hundred sheep were sent home in 1880, and, though it is by no means certain that the shipment was sold exactly on its merits as Australian mutton, there being somewhat of a prejudice against that article on the part of the British consumer, the shipment increased in the three following years to 17,275, 57,256, and 63,733 carcasses, respectively. The continental colonies had already been exporting for two years before New Zealand took up the enterprise, which she has since made peculiarly her own, so far as this part of the world is concerned, though finding a close rival in the La Plata export, which has the reputation of finding greater favor on the Parisian market. Since 1883 there has practically been no proportion between the export from New Zealand and that from the continental colonies, the figures for the last year showing that out of a total import of sheep into Great Britain, amounting to 3,323,821, Australia only contributed 334,693 carcasses, as against 1,896,706 from New Zealand and 1,074,525 from the Argentine Republic, the trifling balance being the contribution of the Falkland Islands. The beef export has a similar tale to tell. Last year there were 99,194 quarters and pieces imported, of which Australia contributed 28,968 and New Zealand 70,226. Against this, how ever, it stands recorded that, while Australia and New Zealand last year together exported rather less than 100,000 of these beef quarters and pieces, the American export of chilled—not frozen—meat is to be reckoned by scores of millions of pounds annually.

Looking at the whole question in the rough, therefore, in the light of these figures, it is apparent that though we have not altogether slept on the question, the Australian colonies at the end of last year had a good deal of leeway to make up before they could share the mutton export with New Zealand on equal terms, while in the matter of beef the whole of Australasia taken together is far behind American enterprise. If this looks a little discreditable to ourselves at first sight, it is not altogether without its crumb of consolation in the fact that it shows the vast field for expansion which lies ahead of the present revival of Australasian enterprise in this direction.

What are the evidences of this revival so far, it may be asked? Well, beginning with our own colony, it may be answered that the New South Wales Fresh Food and Ice Company, which has pioneered the work in Sydney, exported nearly 400,000 frozen sheep in 1890–'91, while the manager estimates an export of 250,000 carcasses for 1892, and that, when arrangements now in progress are completed, it will be able to freeze 4,000 sheep a day. The Australian Meat Chilling and Freezing Company has spent £40,000 in establishing works at Aberdeen, near Scone, on the northern line, of which the average output is 35,000 sheep per month. Mr. Robert Hudson, of Hudson Brothers, has established the Riverina Chilling Company at Narrandera and the Intercolonial Chilled Meat Company at Tenterfield, used principally for the chilling of mutton and beef, respectively; the Narrandera company having a capacity for treating 600 sheep and 30 bullocks per day, while the record at the Tenterfield works for last month stood at 802 cattle and 1,016 sheep treated. The South Coast and West Camden Coöperative Company can treat 5,000 sheep per week, the actual output for the last half year being over 10,000. In addition to these, Messrs. Geddes & Co. are establishing works at various centers, as I shall describe later on, and the refrigerating plant for the stores at Kirribilli Point is intended ultimately to have a capacity for dealing with 12,000 sheep per week. It is worth while noting, in passing, that some of the companies are working with British capital, and it is presumably not oversanguine to assume that the interest of investors so speculating will induce them to lend a large measure of assistance in the way of securing a favorable home market for this Australian export.

Nor have the neighboring colonies been idle. Setting New Zealand aside, since the flourishing industry there can hardly be said to be in a state of revival, it is to be noted that Queensland is making a remarkable effort to cope with the possibilities of the trade. The Lakes Creek works, belonging to the Central Queensland Meat Export Company, Rockhampton, have recently been fitted with freezing appliances in addition to those in use for canning and boiling down, and are now capable of freezing 1,000 sheep daily. On a much larger scale is the enterprise of the new Queensland Meat Export and Agency Company, operating at Brisbane and Townsville, the works in the two places being adequate for the freezing of 1,000,000 sheep or 750,000 cattle per annum. The Townsville establishment, representing an outlay of £60,000, has been pronounced on the authority of an expert to be the finest freezing works in the colonies; and it may be mentioned that here, as at Aberdeen, the benefits of New Zealand experience have been brought practically to bear on the installation and management. This company also proposes to plant an establishment on the Gulf of Carpentaria, and there are still other enterprises in contemplation. These particulars give some idea of what is being done, and of the proportions the industry is surely, though almost silently, assuming.

In the other colonies little has been done so far, with the exception of Victoria, where Messrs. Turnbull, Hotson & Co. have established works at Newport in defiance of the stock tax.

Taking, then, the difference between the present Australian export of beef and mutton and the demands of the English market, so far as we can gauge it by the quantity actually exported, comparing this with the facilities offered by these companies for the treatment of our surplus stock, and bearing in mind what this surplus is in New South Wales and Queensland, we begin to get an idea of the broad outlines of the industry. At present, so far as the export of sheep is concerned, our rival is New Zealand. The exporters of that colony are already recognizing what our chances are now that these colonies have decided to take the industry up in earnest, and they have not been slow to take steps to participate in the promising prospect. The retiring president of the Dunedin Chamber of Commerce gave an indication of the direction public opinion in his colony is taking in this matter in a letter from a London correspondent read at the last annual meeting. "We wish you could see the Queensland, Sydney, and River Plate mutton that is now coming forward," wrote this correspondent; "you would be surprised at its quality. More, as a New Zealander, you would be apprehensive. My firm opinion is that if you go on as you are doing your mutton will not top the tree very long." How those interested in the local export trade hope to fulfill this prediction will develop itself as this series of articles goes on.

THE CHILLING INDUSTRY.

[Inclosure 2 in Commercial Agent Baggs's report.—From the Sydney Morning Herald.]

On the principle that an ounce of fact is worth a ton of theory, and that for practical purposes a month of explanation is not to be compared with a week of personal observation on the spot, I took train to Tenterfield to make a beginning on this frozen-meat question at the Intercolonial Chilled Meat Company's works there.

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The Intercolonial Chilled Meat Company is one of Mr. Robert Hudson's enterprises. This gentleman has made the question of chilled meat his personal concern in a very special manner, having identified himself intimately with it at considerable expense of time and money. I was favored with his company at Tenterfield, and with his own explanation of what he has done and is doing in the matter. It forms an interesting story, and an important chapter in the history of this subject.

It may be remembered that Mr. Thomas Mort, in conjunction with Mr. Nicolle, spent capital and time about twenty years ago in experimenting on the preservation and carriage of mutton and beef, as we shall see in its proper place, and he may be regarded as the founder of our frozen-meat industry in the face of the dictum at that time current that "meat frozen was meat spoiled." His attempt to export by the ship *Northam* had not the success, it is true, to which his persistent experiment and expenditure entitled him, but he at least succeeded in founding a permanent industry, as the present Fresh Food and Ice Company's establishment is in evidence to witness.

Mr. Hudson's efforts in connection with chilled meat present many parallel features with those of Mr. Mort, and one is rather forcibly reminded of the enterprise of that worthy pioneer in reviewing the stages of growth of this chilled-meat industry. Mr. Hudson first had his attention directed to the subject about three years ago, when Messrs. Maiden, Ryder, Donkin, and a few other gentlemen mooted a project for placing country-killed meat on the Sydney market. Mr. Hudson's original interest in the scheme was confined to the building of the necessary cars, but, when the difficulties in the way discouraged his colleagues after a time, he took up the matter on his own responsibility. He saw that the problem of carriage was only to be solved by a modification of the freezing process, which should not be too costly to be set in operation in all the available centers, and he set to work to build an insulated chamber for his experiments. He bought sheep and operated on them there, at first only succeeding in spoiling a good many, but with the example of the chilling processes in America before him he kept at work until it yielded something like satisfactory results. He found that the railway commissioners had a small insulated car, which they consented to place at his disposal. It had been fitted up with a Haslam dry-air machine, under the old régime, for official experiments in a similar direction, and with this at his command Mr. Hudson secured the coöperation of Mr. James Moseley, of Tippereenah, near Narrabri, who provided sheep for a trial trip. The carcasses arrived in good condition, and the experimentalist had the satisfaction of realizing that he had at length devised a perfect plan.

The next step was to secure the proper sort of car for the transit of the country-killed meat. That placed at his service by the liberality of the commissioners was too heavy and otherwise unsuited for practical use, and Mr. Hudson again set to work to hit upon a serviceable car for his purpose. The result was the railway refrigerating car now in use on the lines of the colony, of which Mr. Hudson holds the patent. It combines simplicity and effectiveness in an astonishing degree. When in use the meat is hung on hooks in the car, at either end of which are placed ice racks, four in all, each holding 5 cwts. of ice. These are supported on wooden bars with spaces between, the space underneath being filled with some hundreds of yards of fine piano wire, forming a sort of network. An aperture in the ice block receives the warm air generated by the animal heat of the carcasses, and as the ice gradually melts the moisture trickles down between the bars on to the wire network below, where it is sprayed and purified. The spray aids in cooling the car, while the heavier impure matter, which would otherwise assist decay and raise the temperature, is carried away by a siphon trap in the floor of the compartment. A pipe in the roof of the car helps to carry off any excess of animal heat not passed through the ice block as described.

This car was first publicly tried on a journey from Narrandera to Sydney, when it proved a triumphant success. The car, which had been securely padlocked and secured at the point of departure against any possibility of interference, was opened at Darling Harbor in the presence of about a hundred interested persons, whereupon an inspection committee of five experts entered the compartment, examined the thermometers, and looked at the meat critically. When the inspection was concluded, the contents of the car were pronounced to have arrived in excellent condition, and the success of the experiment was unanimously admitted. The sheep carried had been killed in the sun at Narrandera in a temperature of 120°, put hot into the car, and thence carried over 500 miles of rail without the slightest suspicion of deterioration.

Mr. Hudson had two cars made according to his patent, and, on their being viewed and approved by the commissioners and then accepted, he was asked to furnish eight more. Subsequently Mr. Hudson tendered successfully for the supply of another dozen of these cars, so that at present there are twenty-two Hudson refrigerators in use on the railway lines of the colony. "They will want more like two hundred and twenty-two shortly," added Mr. Hudson at the close of his description; "but at present the commissioners are not keeping time with me, and they have hardly enough confidence in the trade to order more cars." At the same time Mr. Hudson was careful to give every credit to the commissioners for the facilities they afforded him to pursue his experiments and the interest they took in their progress and success.

Subsequently Mr. Hudson obtained a lease of the government meat markets at Ultimo, and his next concern was to supply them with country-killed meat under the best possible conditions. He saw the loss to the grower and consumer entailed by traveling sheep and cattle long distances from their pastures, and then trucking them to Sydney, as well as the unavoidable cruelty of this proceeding to the animals themselves, and the problem he set himself to solve was how to kill as near to the pastures as possible and convey the meat to Sydney with the least expense and risk of deterioration. With this end in view, he visited New Zealand, inspected the freezing establishments there, and also made a special study of the chilling methods as they are pursued in the United States. His ultimate conclusion was that if chilling works on an inexpensive scale were established in all the sheep and cattle growing centers, the graziers in these districts would be assisted and the consumer in Sydney benefited. Visiting these centers, then, he went about evangelizing the country in the interests of his scheme, putting its merits before the squatter and endeavoring to engage him in the enterprise. In several places he succeeded in having the project taken up and discussed in a hopeful mood, but he found the grazier as a class slow to move. He was wedded to old methods and not readily inclined to practically engage in new departures from the beaten track. One district waited for another, preferring to see others test the scheme first; but in the end Tenterfield and Narrandera took it up, floated companies, and planted chilling works for the purpose of making a practical beginning with the industry. Others have since followed in Mr. Hudson's tracks, however, so that his labors have not been altogether in vain; although, like other pioneers before him, he may not reap any direct personal benefit.

The Tenterfield works began operations in February last on a capital of £5,000 in £1 shares, Mr. W. H. Walker, of Tenterfield, being chairman of the board of directors and Mr. John Harker secretary. An area of 125 acres was acquired next to the railway line, 25 acres of which were subdivided to take in the works, dam, drafting yards, and slaughtering place; 6 acres were set aside for a piggery, on which the necessary sheds were built; and a piece of land was apportioned whereon to grow maize for fattening purposes. The remaining 100 acres are subdivided into three paddocks, where cattle are allowed to run before being drafted into the slaughter pens. I went through the works in the company of Mr. Hudson and Mr. Dutton, the manager, and had an opportunity of seeing everything in active working order.

I have been told that the taste for watching animals slaughtered is an acquired taste, and after my own experiences I am quite prepared to believe it. Casehardened individuals, who have been in the business all their lives, have assured me of this during the past week or two, cheerfully adding that in time I might come into the same frame of mind as themselves on the subject. I did not contradict these good folk, but I have my doubts. We stood on an elevated platform behind the slaughterman, watching the cattle enter the pen. One splendid fellow, with wide spreading horns, passed underneath him, and presently down came the pithing spear with a sure and sudden blow that left a crick in the back of one onlooker's neck for a quarter of an hour after. The beast went heavily down, turned his head sideways, and a mild eye upwards. The rest was soon over. The cleaning, quartering, and dressing take little time, and there the dismembered quarters hang on hooks and are presently run into the chill room to be kept in a temperature of from 40° to 45° for about twenty-four hours until the cold penetrates them, when they are transferred to the Hudson refrigerating cars, which run in under a covered portion of the works to receive them.

The chill room, like the cars, is protected against the outside temperature by air-tight, rubber-lined doors, the walls being double, with a considerable space between. The air in this room is kept cool by a continual cold-air draft. The machinery in use comprises one of Taylor's absorption machines, by Humble & Nicholson, Geelong, with a capacity of producing a ton of ice per day; but it should be mentioned that the capital of the company is being increased to £10,000 with a view to providing, among other things, new machinery on a more extensive scale. For the production of the cold draft used in the chill room the usual coils, brine tanks, and ice boxes are in use, the details of the working of which will be explained when we come to deal with the different processes available. Next to this part of the establishment is the tallow digestor, with clarifiers and cooler, by means of which every part of the animal is profitably treated, insuring the greatest gain to the grazier.

Without going too closely into this part of the subject here, it may be mentioned that Mr. Hudson claims on behalf of his scheme that it solves the problem of how to get the meat into Sydney without trucking the cattle and sheep over hundreds of miles of railway, thus saving the starvation and bruising to which the animals are subjected. "By using this system," says Mr. Hudson, "the grazier gets every ounce he fattens, and the consumer gets his beef and mutton in its natural and healthy state." This is a side of the question that comes home to the Sydney citizen. What applies to Tenterfield as regards cattle is also true of

Narrandera as regards sheep, and it is part of Mr. Hudson's scheme to see chilling works established within every 150 miles radius, to serve as gathering places for a central depot at the market or place of shipment. For this purpose he holds that chilling possesses many advantages over freezing, on the score of relative expense, as being more readily available and as giving the grazier of each district a means of dealing with their own surplus stock almost on the spot. "If every grazier would tax himself half a penny per head of stock per annum to erect suitable chilling places," argues Mr. Hudson, "they would without further expense get the benefit of from *6d.* to *1s.* on every sheep sold, besides leveling up the market."

THE FREEZING INDUSTRY.

[Inclosure 3 in Commercial Agent Baggs's report.—From the Sydney Morning Herald.]

Having observed the process of chilling at Tenterfield, as already described, the next step was to look at the freezing industry in all its phases in the same manner. The most elaborate works of this description are those established at the beginning of last year by the Australian Meat Chilling and Freezing Company at Aberdeen, an offshoot of Nelson Brothers' far-extending enterprise. Here Mr. Benn is manager—a gentleman of extensive and thoroughly practical New Zealand experience; and I thought I could not do better than to visit his establishment and add to the material for my study of this large question by a personal interview and inspection.

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The works at Aberdeen are on an enterprising and expensive scale. The company made a beginning by acquiring the freehold of 320 acres of the well-known Segenhoe estate, to which they have since added 5,000 acres in leasehold and grazing rights. When it is added that a sum of £40,000 has been spent on the works, that the machinery, etc., is of first-class character and of the kind which experience has shown to be best adapted to the demands of the operations carried on, and that each department is in charge of a competent specialist, it will be seen that the establishment is in all respects a model one of its kind.

Mr. W. A. Benn courteously gave me every assistance in seeing the working of this large enterprise. It should be mentioned that for the present the company confines its attention strictly to the freezing of mutton, and limits its activity to day work only. In making a tour of the establishment one naturally begins with the slaughter pens. The sheep are taken from the grazing paddocks—never until they have recuperated after their journey down country, during a period of from a week to ten days, Mr. Benn informed me—and passed in here, where relays of a brigade of seventeen butchers are in readiness to receive them. The slaughtering is expeditiously done in a workmanlike and prompt manner at the rate of 1,500 per day, for which number the freezing plant has capacity. The hands so employed, I was told, are paid at the rate of £1 per 100 for killing, skinning, and dressing. When these processes have been gone through the carcass travels along an inclined beam to the cooling or breathing room, where it hangs for the space of twenty hours, until the animal heat has passed off. Thence it passes into one of the four freezing chambers, each of which can hold 800 carcasses; but before entering here each sheep is weighed separately, the result of which has been to demonstrate that in the process of freezing they lose at the rate of from 1 to 1½ pounds per sheep. To reach the freezing chambers the visitor passes out of the breathing room into a cool corridor, along which the carcass is also run in the same manner as before; it being noticeable that here, as at Tenterfield, the direct handling of the sheep is avoided or minimized as far as possible. Entrance to the freezing room is obtained through a manhole—usually, of course, kept carefully closed—in a brick wall 18 inches thick, which is coated again inside with about another foot of compressed charcoal so as to render it absolutely impervious to atmosphere or damp. Within this refrigerating chamber the carcasses hang for the space of from forty-eight to sixty hours in an arctic temperature of about 14° below zero. Your guide takes you through these chambers by candlelight, and the spectacle disclosed is truly a curious one. The frost gathers and sparkles on everything, the chamber is filled with a dense white fog, and fleecy snow covers the spaces like wool. The men who attend to this part of the work of the establishment prepare for it as though they had an arctic expedition on hand, and are as glad to avail themselves of the occasional relief shifts allowed them in the open air as the visitor is to escape from their Esquimaux-like habitation. When the carcass leaves this freezing chamber it passes on to one of the four storerooms, which have a total capacity for 30,000 carcasses in a temperature of from 10° to zero. By this time the carcasses are frozen to something like the consistency of a deal board—"hard enough to build a wall with," my companion tells me. They are encased in calico slips on entering here, and in due course are ready for loading into the cars. These cars run up under a covered way within a few feet of the storeroom, and the carcasses are quickly conveyed along a traveling shoot, by means of which, it is recorded, 500 sheep can be loaded in twelve minutes. The frozen mutton is then ready for its 80 miles journey to Newcastle, the port of shipment.

The engineer in charge, Mr. Bingham, also accompanied me through the machinery department, which in itself constitutes a sight worth seeing. The steam required to drive the machines is supplied by four of Babcock & Wilcox's tubular 80-horse power boilers, consuming 320 tons of coal per month, and for the refrigerating chambers there are two of Haslam's dry-air machines, each of 300-horse power and capable of supplying 120,000 cubic feet per hour. This is the class of machine mainly used for refrigerating purposes on the vessels engaged in the trade. A supply of atmospheric air is conveyed from a room above and compressed by the action of the machine to 350° of heat; thence by an exchanger through a current of waste air, which condenses the moisture and reduces the temperature; the compressed air is then permitted to suddenly expand, with the result that the temperature falls to from 40° to 80° below zero, in which condition it is delivered. On opening the chamber reached by the air in this last stage the engineer was able to take out a handful of snow, while the fog escaped with a rush like steam, and the intensity of the cold in this chamber caused frost to form in the outer air after penetrating through 15 inches of iron plate. Each of these machines is sufficient to supply the necessary cold air for all the refrigerating chambers, between which and the machine the same current is continually circulating.

Mr. Benn informed me that the average output of the works was 35,000 sheep per month. Besides treating the carcasses as described, provision is made for using up all other parts of the sheep—the offal for feeding pigs, other portions for tallow, which is turned out in two grades; the skins are cured; the tongues, kidneys, etc., prepared for export; and steps are being taken to prepare blood and otherwise unused offal for use as manure. Quite a little industry of its own deals with the tongues. There is a pickling place, a tinsmith's shop, and tinning department where the tongues are packed in lacquered tins ready to be put on the market. In all there are about 100 men and boys employed on the works, and the charge to the consignor is 2½*d.* per pound, the skins remaining his property.

As these Aberdeen works are only 80 miles from Newcastle, it is evident that sheep may sometimes have to travel a considerable distance before they reach the company's establishment. This is, however, met by the manager's statement that before a sheep is killed it is left to run for a week or ten days in the paddocks. Some difficult exists, again, owing to the want of storage works at Newcastle, where the frozen mutton can be placed until everything is ready for shipment. Waiting and handling are both things to be avoided as far as possible; but I am given to understand that steps are now being taken to erect suitable storage chambers near the wharf at Newcastle, where the mutton can be held until the freezing chambers of the vessel are open to receive it.

Mr. Benn is sanguine about the prospects of the trade and its advantages to the pastoralist. Our export may be doubled, he considers; but there is a limit beyond which we can not increase our supply without lowering the price of Australian meat on the London market. According to this gentleman, who has every claim to be considered a qualified expert in his branch of the trade, the first prerequisite for a successful trade in Australian mutton is that the grazier will breed for quality and not for quantity, for meat as well as for wool. He is strongly of the opinion that the grower has a great deal yet to learn on this subject, and that, before the frozen-meat trade develops the possibilities before it on a safe and reliable basis which will not be in perpetual peril of disappointing those who have ventured their capital in the business, it will be necessary to reform our methods in this particular. For one thing, the small merino does not give the same return in meat as the New Zealand sheep, so that the cost of freezing to produce the same weight of mutton differs considerably. But this is one of the things, says Mr. Benn, that will cure itself in time, and meanwhile the frozen-meat trade in these colonies is still in its infancy. He is also strong on the point that in the long run there can only be one of two ways of building up the export trade, that is, either by freezing or by boiling and tinning—chilling being out of the question. But it is fair to say that this opinion is not given without the saving clause that, so far, we really know nothing positive about the question, and the most experienced and practical men in the trade are those who are least ready to commit themselves to anything like a dogmatic judgment on the subject. His own opinion is the result of observations so far as he has gone, and he is content to leave conclusive statements on the question to theorists.

Mr. Benn gives his reasons for thinking that the chilling process is unlikely to enter into the consideration with regard to export trade. It is not safe or paying, he says, because of the extra cost of handling and the greater risk of deterioration. The cost, thinks Mr. Benn, is sufficient to put chilled meat outside the market, because the railway rate would be one-third higher and because of the extra expense of handling and refreezing for export after it has been received from the country in its chilled condition. The initial cost of chilling, he contends, is an unnecessary expense if the meat is to be frozen afterwards; and, as it is impossible to pack chilled meat into the same space as the frozen article—each piece in the former case requiring its own hanging space and the proportion of sheep per car being something like 250 to 400—the cost of railway carriage must be higher. The risk of carrying meat in a temperature of 26° on a summer's day, too, must be taken into consideration, as the slightest mistake or accident would be fatal.

Questioned as to what he thought of the possibility of refreezing chilled meat for export, the manager of the Aberdeen works thought that if the chilling were done with ammonia the subsequent freezing could not be undertaken without risk. Of course, if Australian meat could be exported in a chilled condition, like the American article, the case would be different. But the practical test of that matter, according to Mr. Benn, is that the ships in the trade only work in cold air, and, so far as chilling is concerned, he added, "they dare not do it." These ships have to cross the line and are six or seven weeks on the voyage, while the Atlantic floating palaces have only about a week's passage in cool latitudes. For supply of the needs of the local market, however, and the metropolitan consumer the chilling of country-killed mutton and beef may be an adequate and remunerative process, concluded Mr. Benn; and, in any case, the whole question is one that can only be solved by time and experience.

Asphalt of Trinidad.—Under date of January 28, 1893, Consul Pierce desires to make the following corrections in his report on the asphalt of Trinidad, published in CONSULAR REPORTS No. 145: At the foot of page 196 the paragraph should read, "It is proper to observe that the land asphalt specimens, etc.;" on page 229, line 11, should read "6,000 or 8,000 tons," instead of "6 or 8 tons."

THE VINE DISEASE IN MALTA.

REPORT BY CONSUL WORTHINGTON.

I inclose herewith the Malta Government Gazette of the 10th of September, 1892, which contains an interesting and perhaps valuable report on the vine disease in the Maltese Islands. The report has been made by a competent committee of Maltese and English gentlemen, appointed by the governor of these islands, to inquire into the diseases with which the vines of Malta and Gozo are attacked.

The report describes the nature of the three attacking diseases and their names, the diffusion of the diseases, the processes formerly in use and those proposed for the stamping out of said diseases, the remedies now proposed, and the modes of their application.

In this connection, I may say that I have, upon being applied to, been able to recommend the use in these islands of American spraying machines, and I have furnished applicants with such circulars and advertisements of sprayers as have been sent to this consulate by the manufacturers in the United States or by their agents abroad.

From an article published in the Mediterranean Naturalist for September, just issued, I extract and condense the following information on the subject of the vine disease in Malta—first, however, explaining that the disease or diseases that have come to the vines will this year at least deprive the consumers of grapes of nine-tenths of their usual annual supply. I was in one inclosed vineyard, or trellised grapery, last week, in which the grapes there grown are usually sufficient to furnish their grower with all his own season's wants and enable him to realize upwards of £30 per annum from the sale of the surplus, but which this year will yield no grapes. The vines looked sapless, the leaves withered, and the unformed bunches were shriveled and of no value. The owner would not, he told me, get so much as 1 pound of grapes for his own use or for sale. This failure in the grape crop is a serious drawback to what promised to be the development of a new source of income to the inhabitants, for they had thought to do well in the manufacture of wine—an industry not heretofore attempted in any but a small way and for strictly family wants.

The past year or two has witnessed considerable activity in the development of the vine-growing capabilities of these islands, the geognostic and climatic characters of which are such as are eminently adapted to vine culture. Among the many causes that have contributed to the introduction of this change, one of the most important is the great decadence that has lately taken place in the orange-growing industry and the desire that has been manifested to see it supplemented or replaced by one which might not only be a direct source of revenue to the country, but which would also be the means of employing profitably the energies of the large agricultural population which is solely dependent upon the soil and its produce for their sustenance. Much distress has been occasioned among the agriculturists of the islands by the ravages among the fruits and vegetables of a number of parasitical foes, both animal and vegetable, which have wrought such havoc as to seriously threaten the very existence of many branches of agricultural industry. During the last year or two the damage thus caused has assumed very serious proportions, and the government has therefore, with a view of mitigating the evil, appointed various commissions to inquire into the causes of, and to suggest remedies for, it. Many of the diseases have, however, taken such deep root that, whether they be now eradicated or not, considerable losses must be incurred by both capital and labor.

It was at this juncture that several gentlemen of the island came forward, and, says the Naturalist, with commendable enterprise and patriotism, endeavored to supply the places of some of the old industries by the introduction on a large scale of vine culture, a branch which is carried on with great success and profit in the neighboring islands and countries. They expended large sums of money and caused extensive tracts of country both in Malta and Gozo to be laid out and planted with several hundreds of thousands of vines. The interests at stake were large, and the anticipations of what Malta might become as a wine-producing country were hopeful; and it was therefore with no small feelings of regret that the government and the public were informed a few weeks ago that the vines in both islands had been attacked by the *Peronospora*, one of the most virulent and destructive of the diseases to which the vine is subject. The "mildew," as it is popularly called, has been in existence in France and in northern Italy for the last fifteen years, but it was not until this year that it made itself manifest either here or in Sicily.

As soon as its presence had manifested itself the Malta government authorities took immediate steps and appointed a commission to inquire into the extent and character of the new invasion. The result of these inquiries has been to show that the disease is diffused to a greater or less extent throughout both islands, but that it seems to be in a more advanced state of development in Gozo than it is in Malta. Of the many hundred plants that were examined in the vineyards of Kala and other localities all, without exception, were found to be badly affected.

In the majority of cases the disease was confined to the leaves only, but a large percentage had their branches attacked, and the fruit was found to be in a very dwarfed and undeveloped state, a fact that was undoubtedly due to the devitalizing effect of the fungus which was preying upon them. In the inhabited districts, where the vines were not numerous and those that did exist were well sheltered from the sirocco by high walls and dwelling houses, it was observed that they were either quite free from the disease, or, where it had made its appearance, it occurred in such a modified form as to be practically harmless.

The nature and the principal characteristics of the disease as it has appeared in Malta may be of interest and instruction to the growers of vines in the United States, and I therefore quote exactly what follows from Prof. Cooke's article on the subject in the current number of the Mediterranean Naturalist:

> The *Peronospora* is a parasitical fungus belonging to one of the genera of the order *Mucedines*, which is a subdivision of a family of plants known by the name of *Hyphomycetes*, signifying "thread" and "fungus," and hence so called on account of the thread-like filaments which form one of its most prominent characteristics. It infests all orders of plant life, attacking in particular the potato, onion, lettuce, pea, wheat, and the vine.
>
> The species which attacks the vine is the *Peronospora viticola*. It develops itself on the twigs, fruit, and leaves alike, but it is usually on the last of these that it first manifests itself.
>
> It makes its appearance as a whitish efflorescence, which develops on the underside of the leaf, accumulating in the greatest quantity on and around the veins, while on the upper side it assumes the appearance of yellowish and reddish-brown spots that impart to the leaf a faded and mottled aspect. A leaf thus affected gives forth a characteristic fetid odor when rubbed between the fingers.
>
> The fruit is attacked by a similar efflorescence, which destroys the bloom and accumulates in such quantities around the peduncle as to absorb all of the fluids of the grape, thus retarding their growth and causing them to rot away and fall off.
>
> When examined under a microscope of a moderate power the fungus will be seen to consist of a network of ramifying threads, which cross and recross one another, entering into and entwining themselves among the intercellular spaces of the leaves and giving forth a perfect forest of prehensile threads, which stand forth at right angles from the surface, and which bear at their extremities enormous numbers of minute ovoid and rounded bodies, called spores.
>
> This vegetative system of ramifying threads, with its concomitant spore-bearing filaments, is known as the *mycelium*, and it is within it that the spores, by means of which the disease is propagated, are generated.
>
> Within the tissues are certain cellular bodies known as the *oögonia* and the *antheridæ*, containing a granular protaplasm or formative fluid and having a presumed sexuality. The *oögonia* are the female organs and the *antheridæ* are the male, and by them are produced the *oöspores* which are afterwards developed in the *mycelium*. The *oöspore* consists of a membranous sac containing a thin fluid matter. It is of a rounded form, and, as it is developed in the greatest numbers in the autumn, it is commonly known as the autumn spore. They are to be seen on the threads of the *mycelium*, and, as they have great resisting powers to heat, cold, and wet, they often remain dormant and unhurt for many months after the death of the plant to which they owe their existence.
>
> Humid conditions and a high temperature are highly favorable to their development, and it therefore follows that they are most active during the spring and autumn, and that during the summer and winter they are practically quiescent. Rain, dew, fog, and hail greatly assist also, but the most potent factor in this climate is the humid, unwholesome sirocco. Badly drained lands, clayey soils, and the proximity of springs also play an extensive part in fostering the fungus.
>
> With the return of spring the *oöspores* become once again active, and under the combined influence of heat and damp they generate the *conidia*, or summer spores. These *conidia* are oval bodies, which are developed in the *mycelium* and are given off from the extremities of the branchlets. They are so exceedingly small that it would take one hundred million of them to cover a superficies of 1 square inch.
>
> They are generated very rapidly, and, being easily detached, they are wafted to great distances by the wind; and, as every spore is capable of forming a separate vegetative system or fungus, the rapid manner in which the disease has spread in these islands will be at once understood. The sirocco plays a double part in the propagation of the spores. Its warmth and damp favor the generation of the *conidia*, while its movements disseminate them over the islands.

It is to its influence, combined with the exceptionally wet conditions that prevailed during the months of May and June, when 3.22 inches of rain are recorded as having fallen, and the abnormal rainfall of July, when 3 inches fell, that we may largely attribute the present deplorable state of our vines.

The action of this fungus on the vine is most demoralizing. It paralyzes the respiratory functions of the plant, and, by absorbing its nutritive juices, it devitalizes it.

From this brief notice of the causes, effects, nature, and conditions most favorable to the propagation of the disease I shall now pass on and briefly consider the methods of treatment that have been suggested by the commission, which, if faithfully followed and methodically carried out, will assuredly rid the islands in a comparatively short period of time of this most pernicious plant. Unlike many of the diseases to which Malta plant life is subject, that caused by the *Peronospora viticola* is amenable to a method of treatment which is at once cheap, easily applied, and effective. The disease has been in existence in France and northern Italy for many years, and, as the governments of those countries have expended vast sums of money on experimental research having for its object the most efficacious means for combating this disease, we have the additional advantage of having their experiments and experience to guide us. The result of their work has been to prove that there is but one effective remedy at present known, and that is sulphate of copper; and that, although sulphate of copper is a strong poison, no apprehension need be felt in using it, for if used in the proportions recommended it is quite harmless. Lime, sulphur, charcoal, and a variety of other materials have been tried, but as a specific against the disease they are all worthless.

Sulphur has been used on the vines in these islands for many years as a cure for the *Oïdium* (black rot) and the *Erinosa*, for both of which diseases it is a good remedy, but for *Peronospora* it is absolutely useless, and the sooner the Maltese vine-grower recognizes this fact the better it will be for his pocket.

The sulphate of copper is a very cheap chemical. It may be applied either in a dry state or in a liquid form. To apply in a dry state a powder consisting of three parts of sulphate of copper and ninety-seven parts of sulphur (or charcoal) should be thoroughly mixed together and afterwards scattered over the foliage of the plants by means of a pair of bellows, or with a tin can having a perforated head. Either sulphur or charcoal may be used, as it is only of service as a carrier for the sulphate of copper. The prohibitive prices of sulphur in Malta will perhaps suggest the use of the alternative, charcoal, which, besides performing the functions of a carrier will also improve the soil and free the plants from insects.

The liquid form is, however, the one to be the most strongly recommended. The following very simple mode of mixture has been proposed in the report of the commissioners:

(1) A half ounce of sulphate of copper (blue vitriol), to be dissolved in a pint bottle of water.

(2) A half ounce of slacked lime, to be thoroughly shaken up in a bottle containing an equal quantity of water.

(3) Mix the two thoroughly together so as to form a perfectly homogeneous liquid, and then add to it sufficient water to make up to one-eighth of a barrel, known in the vernacular as 1 "quarta."

This mixture should then be sprayed on the plants by means of common garden syringes, or with the combination pump and syringe which has been specially constructed for the purpose.

Among the poorer agriculturists of Sicily, to whom the expense of purchasing such instruments as these is an insurmountable obstacle in the way of their adopting this mode of treatment, I saw a novel but most simple substitute, which, though it necessitated the expenditure of a much longer time in the application of the mixture, was, I was assured, equally as efficacious. The *modus operandi* was as follows: The mixture was carried among the vines in wooden buckets; into it the operative dipped a large brush, such as that which is commonly used for whitewashing, and by means of an upward, followed by a sharp downward, movement of the arm the contents of the brush were sprinkled over every portion of the foliage. It is a method that should recommend itself to all those who are unable to obtain the syringes, as it is both effective and cheap.

The effect which the sulphate of copper has upon the fungus is to paralyze the generative functions of the *oögonia* and to thus effectually stop the propagation of the *oöspores* and *conidia*.

Considering the widespread diffusion of the disease, not in these islands only, but also in all of the countries along the Mediterranean shores, the commission recommends that immediate steps should be taken in order that the generation of the *oöspores* which are now in course of formation may be arrested and the grape harvest of next year saved. The treatment above recommended should be at once applied, after which a regular and methodical course as follows should be adopted:

(1) As soon as the buds of the vine appear the plants should be treated with the powder consisting of three parts of sulphate of copper and ninety-seven parts of sulphur (or charcoal).

(2) When the plants are covered with foliage the liquid treatment, as recommended, should be applied.

(3) When the grapes begin to mature the powder containing five parts of sulphate of copper and ninety-five parts of sulphur (or charcoal) to be used.

(4) After the grapes are collected the liquid treatment should be again applied, with a slight excess of sulphate of copper.

Prof. John H. Cooke, who is a member of the commission I have spoken of, says further, in effect, that the present deplorable condition of the vines in Sicily, Italy, and Greece, where the wine and raisin industries have this year been all but paralyzed, offers itself as a good object lesson to the agriculturists in these islands. He also says that here the disease is now but in its incipient stages, and, if therefore energetically wrestled with, there is every probability that it will be possible to keep it in subjection so as to render its effect practically harmless; but, if it be allowed to firmly establish itself, there can be no doubt whatever that the projects for the cultivation of the grape on a large scale and the establishment of a wine industry in the Maltese islands will have to be relegated for another decade at least to that limbo of Utopian ideas, in which so many well-meant schemes for the islands' weal and prosperity have already been stifled.

JOHN WORTHINGTON,
Consul.

UNITED STATES CONSULATE,
Malta, September 13, 1892.

REPORT OF THE VINE-DISEASE COMMISSION.

[Inclosure in Consul Worthington's report.—From the Malta Government Gazette.]

We, the committee who have been appointed by your honor to inquire into the diseases with which the vines of the islands of Malta and Gozo are attacked, have the honor to state that as a result of our inquiries we find that the vines of these islands are at the present time affected by the three following diseases, viz: (1) *Peronospora* (mildew), (2) *Erinosa*, (3) *Oïdium* (black rot).

The *Oïdium* has been in existence in these islands for many years, and, as the vine-growers are already familiar with its character and the most effective remedies to apply, we do not propose to deal with the subject in our present report.

The *Erinosa* is a parasite which attacks the superficial layers of the foliage. It generally appears during June and July, and dies off in August. As it does little or no damage to the vine, we do not intend to take further notice of it at present. It is often a concomitant of the *Peronospora*, but, unlike that disease, it does not affect the vitality of the plant upon which it preys.

THE PERONOSPORA.

The virulence of the attacks of this disease has rendered it a real scourge to the vine industry of these islands. The attention of the committee has therefore been principally engaged in studying its characters and the methods that are best adapted for its extermination.

The disease is said to have been introduced into Europe from America about fifteen years ago, and since then it has caused enormous damage among the vineyards of France and northern Italy.

It was not, however, until this year that it was observed either in Sicily or in these islands, though we have reasons to think that it has existed here in a modified form for some time past.

The *Peronospora* develops itself on the twigs, leaves, and fruit alike. It manifests itself as a whitish efflorescence, which accumulates on and around the veins on the underside of the leaves, while on the upper surfaces it assumes the appearance of yellowish and reddish-brown spots. A similar efflorescence is noticeable on the grape, but in this case the fungi accumulate in the greatest quantity around the peduncle. No difficulty will be experienced in determining whether the plant be attacked by *Peronospora* or by *Erinosa*, as the spots on the upper side of the leaf are markedly characteristic of the former. Another and an equally certain method of distinguishing between the two diseases is by the blistered appearance which the upper surface of the leaf exhibits without losing its characteristic green color when affected by *Erinosa*, and by the coarser, woolly character of the fungus on the underside within the concave part of the blister.

The conditions which are the most favorable to its development are a high temperature and a humid state of the atmosphere.

It therefore follows that the greatest development takes place in the spring and autumn, and that during the summer, when dry atmospheric conditions prevail, it is practically quiescent.

Rain is favorable to its diffusion, but less so than either fog or dew, as when the rain descends it often washes great quantities of the spores into the soil, where they die. Hail also plays a considerable part in the dissemination of the disease, but the most influential factor seems to be the sirocco, the damp, humid nature of which, combined with its comparatively high temperature, probably does more than all of the others.

When this disease is prevalent, wind of any kind is highly detrimental, as it serves to disseminate the spores among other plants, and in this manner the affection is often carried to great distances. Badly drained grounds, clayey soil, and the proximity of springs also serve to foster the fungus. It is on this account that we find the *Peronospora* to be specially prevalent in those vineyards that are situated in the bottom of valleys or immediately on or near the outcrops of the marl beds. The exceptionally wet conditions that prevailed during the months of May and June, when 3.22 inches fell, and the abnormal rainfall of 3 inches that we had in July have all contributed largely to the present deplorable condition of our vines.

DIFFUSION IN THE ISLAND.

From information that has been gathered and inspections that have been made in various parts of both islands, we find that the *Peronospora* is universally diffused over them, but that it appears to be in a more advanced state in Gozo than in Malta. All of the large vineyards are affected to a greater or less extent, but in the inhabited districts, where the vines are protected by walls from the influences of wind and the direct action of the sirocco, the disease is almost absent.

PROCESS OF TREATMENT.

Prior to 1887 many modes of treatment were adopted with varying success, but after a discussion of the various methods had been made at the request of the minister of agriculture of Italy it was decided that sulphate of copper was the only effective remedy at present known. Sulphur was declared to be most efficacious in the case of *Oïdium*, but of no use whatever in the treatment of *Peronospora;* while lime, which had also been largely employed, was pronounced to be useful only as a fixing agent for the sulphate of copper.

Although sulphate of copper is a strong poison, no apprehension need be felt in the using of it for this purpose, as it has been demonstrated that when used in the proportions recommended it is considered to be harmless.

Sulphate of copper may be applied to the plant in two ways—(1) in a dry state, (2) in a liquid form.

THE DRY FORM.

It has been recommended that three parts of sulphate of copper should be mixed with ninety-seven parts of sulphur, and that the mixture thus formed should be freely sprinkled over the vine leaves. Considering, however, the high market price of sulphur in Malta and the fact that it does not in any way counteract the effect of the *peronosporic* fungus, we beg to suggest a substitute in powdered charcoal, which would be quite as effective as a carrier for the sulphate of copper, and which would possess the additional advantage of at once improving the soil and freeing the plants from insects.

The usual methods employed for applying the powder are as follows: (1) By means of specially constructed bellows, (2) by means of tin cans with perforated heads, (3) by hand. Of these, the first and second are the most efficient and economical. The third is not to be recommended.

THE LIQUID FORM.

From 3 to 7 grams of sulphate of copper are dissolved in 1,000 grams of water of a temperature of from 50° to 60° F., and the solution is then mixed with quicklime, which serves to fix the sulphate of copper on the leaves of the plants.

It is necessary that water of the temperature recommended should be used, as otherwise the foliage of the plants will be injured.

The usual methods employed for the application of the mixture are: (1) By means of syringes adapted to that purpose, (2) by means of common syringes, (3) by means of brushes.

Either of these is most effective. The last is, however, to be recommended only where the expenditure necessary to obtain the syringes would constitute a serious obstacle to the adoption of the suggested treatment. The process is as follows: A bucket containing the solution is carried among the vines, and into this the operative dips an ordinary brush, such as is used for whitewashing, and thoroughly sprinkles the upper surface of the leaves.

We here beg to suggest that government should at once obtain samples of these bellows and syringes for the inspection of the vine-growers of the islands, for we feel sure that, unless proper and effective apparatus be employed, there must be a great waste of both time and material. In view, also, of the very serious aspect that the disease has now assumed in the islands, we are of opinion that immediate steps should be taken to counteract its influence, in order that the produce of next year may not be jeopardized.

To do this it will be necessary to adopt the following treatment:

(1) Take half an ounce of sulphate of copper (blue vitriol) and dissolve it in a bottle of water.

(2) Take half an ounce of quicklime (slacked lime) and thoroughly shake it in a bottle containing an equal quantity of water.

(3) Mix the two thoroughly together so as to form a perfectly homogeneous liquid, and then add water to make up to one-eighth of a barrel, called in the vernacular "quarta."

This should be sprayed on the plants, and after six days it should be succeeded by the following treatment:

(1) To 97 ounces of powdered charcoal or sulphur add 3 ounces of sulphate of copper (blue vitriol).

(2) Mix the two thoroughly and scatter over the plants.

This, we believe, would not only arrest the progress of the disease, but it would also materially assist in preventing its development next year.

Considering how prevalent the *Peronospora* is on the neighboring shores, it is hardly to be expected that we shall escape in future years unless precautionary measures be adopted.

For this purpose we therefore beg to propose the following methodical treatment of the vines of these islands:

(1) As soon as the buds appear the vines should be treated with a powder containing sulphate of copper and charcoal or sulphur in the proportion of 3 to 97.

(2) When the plants are covered with foliage the liquid treatment should be applied.

(3) When the grapes begin to mature a powder containing sulphate of copper and charcoal or sulphur in the proportion of 5 to 95 should be used.

(4) After the grapes are collected the liquid treatment should be again applied with a slight excess of sulphate of copper.

From what is being done on the Continent, we find that the American varieties of the vine are much better adapted to resist the diseases to which the vines of these regions are so susceptible, and we therefore beg to suggest that facilities be afforded to the vine-growers of these islands to import seeds from Italy of those varieties for cultivation here.

We think that the chemicals, ready mixed, should be distributed free to the country people, in order that they may be encouraged in combating a disease which threatens seriously the existence of what promised to be a most thriving and prosperous industry. Considering, too, the very ready manner in which the disease is propagated to great distances by the action of the wind, we are of opinion that, unless the remedies here suggested be universally adopted, but little progress will be made in stamping out the scourge; and we would therefore suggest that the government should take such steps as may be necessary to compel all vine-growers to adopt the above treatment.

S. L. PISANI, M. D.
FAB. BORG, M. D.
EVARISTO CASTALDI.
JOHN H. COOKE.
DR. F. DEBONO, M. D.
DR. GAETANO TRAMBLETT.
AGO. RANDON.
C. E. STRICKLAND.

COMMERCE OF TURKEY.

REPORT BY CONSUL-GENERAL HESS, OF CONSTANTINOPLE.

I have the honor to inclose herewith the return of trade of the Ottoman Empire, being a transcript of the official statistics published by the Turkish custom-house of Constantinople for the Turkish fiscal year ended March 12, 1891.

There is a marked decrease of exports and increase of imports as compared with the previous year, and this fact, of course, is against Turkey. Both the amounts for the United States, however, show an increase, viz, $111,173.18 for the exports and $63,405.19 for the imports.

The trade of Turkey with the United States is increasing steadily, as shown in the digest-of-invoice book for the quarter ended September 30, 1892, and I believe the increase will continue, as I am informed that large quantities of wool will be exported hereafter from this consular district. Much depends, of course, on the epidemic of cholera, which is still prevailing in Russia and Europe and which so far has been kept off and only visited one or two points along the Black Sea coast, viz, Trebizonde, Platana, etc. Should the scourge be kept back, there is much hope for good trade in Turkey with the United States.

Table showing the foreign commerce of the Ottoman Empire during the year ended March 12, 1891 (being the Turkish fiscal year).

Countries.	Imports.	Exports.
Austria	$20,269,459.76	$4,573,594.94
Belgium	2,204,714.69	54,936.37
Bulgaria	4,204,148.61	1,793,987.49
Denmark	233.46	5,289.77
Egypt	276,197.15	3,016,875.36
England	43,660,232.00	21,177,317.59
France	12,467,856.41	16,421,186.06
Germany	278,324.82	513,044.93
Greece	1,568,673.79	2,253,054.23
Holland	481,929.10	736,969.68
Italy	2,199,033.98	2,438,514.14
Montenegro	23,424.68	24,834.88
Persia	2,574,026.75	73,132.22
Roumania	2,053,180.71	1,043,783.87
Russia	7,493,372.21	1,290,446.43
Samos	2,515.39	40,719.01
Servia	396,410.70	196,806.72
Spain		19,404.51
Sweden	165,708.88	
Tunis	175,026.81	3,524.93
United States	328,642.73	803,552.98
Total	100,823,673.63	56,480,495.28
Total for preceding year	91,582,701.59	66,758,690.93
Decrease		10,278,195.65
Increase	9,240,972.04	

The exports of tobacco amounted to 33,479,832 pounds, and the imports, mostly cigars, to $25,290.45.

WILLIAM B. HESS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Constantinople, October 8, 1892.

TRADE OF SARAWAK.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

The trade returns of Sarawak for the year 1891 have just come to hand. I take the liberty of making a résumé of the contents, as little attention has ever been called to this distant but productive quarter of this consular district.

It may be of interest to know that Sir Charles Brooke, the present Rajah of the country, is anxious to see American capital interested in the development of his State, and that the kindly feeling felt for America by him arises from the important fact (to him) that the United States was the first nation to recognize the independence of Sarawak in the days of his renowned uncle, Sir James Brooke, founder of the State.

The territory of Sarawak comprises an area of about 50,000 square miles, slightly larger than the area of the State of New York, with a population of about 320,000, composed of various races, principally Dyaks and Chinese. It is situated on the northwest coast of the great island of Borneo, is intersected by many rivers navigable for a considerable distance inland, and commands about 400 miles of coast line.

As will be seen by the summary of returns, the country produces gold, silver, diamonds, antimony, quicksilver, coal, gutta-percha, India rubber, canes, rattans, camphor, beeswax, birds' nests, sago, tapioca, pepper, gambier, and tobacco.

The trade of 1891 was greater in value than that of 1890 by $436,498, the total trade being valued at $5,000,690, as against $4,564,192.

Imports, as usual, are considerably less in value than exports, so that the treasure which is received to make up the difference is distributed among the population and to some extent enriches the country. Money is reported to be cheap and plentiful at present, as shown by the low rates of interest obtainable on loans, and, as a consequence, building and general improvement of property is the order of the day. The low price for pepper, which prevents as much capital as usual being sunk in planting, has also helped to leave more money uninvested. The imports showing the greatest increases in value are brass ware, ironware, sundries, and treasure, the latter showing an increase of over $92,000. The decreases are numerous, but small, with the exception of that in opium ($16,322), the next largest ($3,941) being in alcoholic liquors. These decreases are the natural consequences of the depression in the price of pepper, which causes the coolies and small planters to be no longer so well supplied with cash as formerly, with the result that they can not afford such luxuries in any quantity.

Exports amounted in value to $2,649,880, an increase of $314,605 on the value of the exports during 1890. Articles showing the greatest increases were sago flour, rattans, and copra, with increases in value of $210,450, $17,557, and $17,214, respectively; while their quantitative increases were

51,479 piculs (1 picul=113⅓ pounds), 11,382 piculs, and 4,956 piculs. Other increases in value exported were those on antimony and coal (over 10,000 tons), valued at $59,915, though the quantity exported of both these minerals was less than in 1890. This coal was exported from Sadong only, and is exclusive of a very considerable amount turned out by the Government mine at Brooketon. Among the exports which have most decreased in value are gambier, timber, and quicksilver. Gold shows an increased export of 128 bongkals (1 bongkal=832 grains). It is to be regretted that the antimony and quicksilver show such a large diminution; but at present the Borneo Company is in every way stimulating natives to seek and report fresh deposits of these valuable minerals, and it is to be hoped that their efforts will in the near future meet with success. Opium reëxported has a loss in value of over $35,000, probably owing to the new farmers having stopped the extensive smuggling trade which, it is said, was carried on by their predecessors. The value of pepper exported was $5,663 less than in 1890, though 2,569 piculs more were exported.

Thirty-five thousand tons of shipping arrived and 36,000 tons left, exclusive of inter-outstation coasting trade. On the whole, the return shows a gratifying increase over the previous year and a decided increase in its individual carrying trade.

In hard woods of all kinds suitable for furniture and house-finishing Sarawak is peculiarly rich, and only needs proper attention to become one of the greatest hard-wood markets in the world. Labor is cheap, and concessions are readily obtained, and the judicious investment of capital would, in my judgment, bring large returns.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, September 9, 1892.

BIRDS AND FRUITS IN MALTA.

REPORT BY CONSUL WORTHINGTON.

One of the most serious question that agitates the inhabitants of the Maltese Islands at present is the falling off of the fruit industries. It is really a very serious matter for the Maltese, and much depends upon its wise treatment by them. Two articles have recently appeared in a Maltese newspaper (Public Opinion) upon the subject, and they contain so much that is practical in the way of suggestion and advice that I venture to annex them to this report. They were written by Mr. John H. Cooke, editor of the Mediterranean Naturalist, published in Malta, who is a member of the commission recently appointed by the local government to investigate the causes of, and suggest remedies for, the fruit diseases in these islands.

Mr. Cooke makes a point in the articles mentioned that has not heretofore received much, if any, consideration in Malta. It is this, that if the birds were protected, instead of being allowed to be shot and snared, they would naturally and largely destroy the insects that are the principal cause of destruction to the various fruits, and even vegetables, in the islands. He claims that here, in a more pronounced degree than elsewhere, the birds they slaughter are the farmers' friends, and that greater good would result from their preservation than by their extermination. I believe, so far as Malta is concerned, that Mr. Cooke is right. And the examples he gives and the deductions he draws may be of interest to fruit-raisers and bird-slayers in the United States.

Mr. Cooke further claims that the principal cause of the great—and it is great—falling off that has of late years occurred in the fruit industries in this and other neighboring islands is due to the nonimposition by the governments of reasonable restrictions upon the popular pastime of shooting and netting birds. His argument is sound when he says that it is highly probable that, unless some energetic measures be adopted to counteract the influences of the causes that are at work, within a comparatively brief period of time many of the fruits, such as the orange and mandarin, for the growth of which the Maltese Islands have so long been famous, will be either exterminated or cultivated only as curiosities.

By the destruction of the birds, Mr. Cooke asserts, the physical and sanitary welfare of the population is imperiled, in that diseases, such as diphtheria, ophthalmia, and leprosy, are carried from person to person by insects which are the natural prey of the birds.

JOHN WORTHINGTON,
Consul.

UNITED STATES CONSULATE,
Malta, September 23, 1892.

AN IMPORTANT QUESTION.

[Inclosure 1 in Consul Worthington's report.—From the Malta Public Opinion of September 17, 1892.]

ST. JULIAN, *September 14, 1892.*

SIR: The remarkable falling off in the quantity and quality of the fruit which has been grown in these islands during the past season has attracted much attention; but, though all have been unanimous in deploring the fact, few, if any, have cared either to seek for the causes or, if they have known them, to suggest remedies for the evil. During the last few years the fruit-growing industry of Malta has been slowly declining, and, judging from the present outlook, it seems highly probable that, unless some energetic measures be adopted to counteract the influences of the causes that are at work, within a comparatively brief period of time many of the fruits, such as the orange and mandarin, for the growth of which the Maltese Islands have so long been famous, will be either exterminated or will be cultivated only as curiosities.

It is, I believe, a well-known fact that the orange, mandarin, lemon, fig, nectarine, olive, apricot, apple, pear, grape—in fact, every kind of fruit and most kinds of vegetables grown in these islands are at present affected with a variety of diseases that not only attack the fruit, but also devitalize the tree to such an extent as to jeopardize its very existence.

The Malta orange is at the present time affected with four different kinds of diseases, the virulence of which has caused the almost total failure of the orange crop in many parts of the islands. Of these, the insect *Ceratitis citriperdi*, which deposits its larvæ in the fruit, where they afterwards develop, is perhaps the one which is the most to be dreaded. But it does not confine its attentions to the orange alone; the nespola, nectarine, and apricot suffer equally from its attacks. Another foe, which is of an even more deadly character, is the beetle *Cerambyx*, which, while in the caterpillar stage, bores its way into the heart of the trunk of the nespola and the apple trees and causes them to rapidly decay and die.

But it is not the fruit gardens alone that have been invaded by insect pests. The pea crop of last year was seriously diminished by the attacks of a worm called the "cadell" and of an aphis called the "blanqueta." The number of caterpillars of a variety of lepidopterous insects that were found to be feeding on the early crop during last spring was enormous, and great havoc was made among the leaves and shoots.

The wheat, the sulla, the cotton—the staple productions of the Malta soil—all have insect foes in numbers that are out of all proportion to the area of the districts in which the crops are grown. To what are we to attribute this invasion of insectiferous pests? The cause is not to be sought for in the soil or climate of the islands, as both are admirably adapted for agricultural purposes; neither is it to be found in the modes of cultivation that are adopted by the native farmer, for in most instances they are such as experience has shown to be most suitable to the exigencies of the Maltese cultivator.

The invasion is, I believe, to be traced to the willful interference with, and violation of, those laws of natural coördination which nature has established for the preservation of the balance of power between the animal and the vegetable kingdoms of these islands.

It is to the unjustifiable crusade which is carried on, in season and out of season, against birds of all kinds, from the noble eagle which occasionally visits our shores to the humble tits and robins which are indigenous to the islands, that this unusual preponderance of insect life is due. Birds of all kinds are the principal checks to an undue increase in insect life, as both the graminivorous as well as the insectivorous species feed their young almost exclusively upon the pupæ and larvæ of insects; and wherever, therefore, insects are found to be on the increase, it is because, by man's interference with the balance of nature, an undue proportion between the insects and their natural enemies has been established. A walk on the outskirts of any of the casals of a fine afternoon will afford an explanation of the manner in which this depletion of the birds is carried on.

It is a common experience to meet with companies of boys and men armed with guns and going out for an afternoon's shooting. Sparrows, larks, tits, robins—nothing is sacred to them. Their hands are against bird life of every description.

Nor is this illegitimate sport (*sic*) carried on by those alone who are authorized by law to be in possession of firearms. Mere boys are often to be met with on these expeditions with guns on their shoulders, and, like their elders, bent on the ruthless slaughter of anything that is capable of flying. It is a common Sunday pastime. Enormous numbers of birds, too, are annually trapped or netted and sold in the markets or hawked about the streets for ridiculously small sums of money per dozen.

In the breeding season the barbarous cruelty displayed toward the young birds by the country people is most revolting. It is a common practice to wait until the eggs are hatched, and then to take the young away as soon as they have feathered, after which they are either killed or given to the younger children to play with—and torture. The extent to which this systematic nest-robbing is carried on is almost incredible. I would therefore beg to suggest, sir, that some steps should be taken to correct the erroneous ideas that prevail among these people as to the really beneficial effect that the presence of birds has in an agricultural district, for it can only be to misconception and crass ignorance of bird habits that such iniquitous practices are due. That birds are the farmers' friends is now universally admitted, and the study of the interrelations of birds and agriculture, and the investigation into the food, habits, and migration in relation to both insects and plants, is a subject that is occupying a prominent place among the foremost of the subjects now engaging the attention of practical agriculturists. Had these interrelations been properly appreciated in these islands, we should not now be regretting the presence of these pernicious insect pests nor deploring the decadence of our fruit industries. But even though the diseases are now firmly rooted in these islands and every year grow more virulent in their characters and more disastrous in their effects, if energetic measures be adopted some good would assuredly accrue, for in nature all is symmetrical; equilibrium must exist in all her works, and, therefore, if the cause of the evil be removed, in a comparatively short period of time the balance would be reëstablished.

In the foregoing necessarily brief observations I have endeavored to lay before you the causes and effects of what is threatening to become a most formidable evil, and to suggest the desirability of adopting such measures as may be necessary to afford more efficient protection to the birds of these islands, especially to those which, by destroying vermin and injurious insects, render such immense services to our little community.

To effect this it would be necessary that some legislative steps be taken to check the sporting proclivities of a certain section of the community by limiting the shooting season to those months of the year during which the annual migrations from Europe to Africa, and *vice versa*, take place and by the issue of more stringent regulations regarding the granting of shooting licenses.

By so doing our indigenous birds would be afforded opportunities for breeding and increasing, and then, with his feathered protectors about him, the farmer would have a chance of successfully combating his insect foes. The cruelty practiced on young birds in the country districts is a matter which might well engage the attention of the Society for the Prevention of Cruelty to Animals, for, though the society may not be able to entirely stop the practice, the members might do much toward mitigating it.

I am, etc.,

JOHN H. COOKE.

THE SPREAD OF CONTAGIOUS DISEASE.

[Inclosure 2 in Consul Worthington's report.—From the Malta Public Opinion of September 22, 1892.]

ST. JULIAN, *September 22, 1892.*

SIR: In a letter which I recently addressed to the president of the agricultural commission, and which was published in your penultimate issue, I pointed out what I considered to be the principal cause of the great falling off that has of late years occurred in the fruit industries of these islands, and at the same time I ventured to suggest that the only effective remedy for the evil would be to protect our birds, in order that the balance of nature between insect life and bird life might be preserved.

My letter has, it seems, excited a keen and appreciative interest in this all-important subject, and, judging from the general tone of the criticisms on it, I do not think that any difficulty would be experienced in obtaining the sanction of the people for the imposition of reasonable restrictions upon the popular pastime of shooting. That a certain amount of opposition will be manifested is not to be wondered at, when it is remembered what an enthusiastic sportsman the average Maltese is.

But this is a question on which the general welfare of the population of these islands largely depends, and therefore no notice of the selfish disappointment that may be expressed by any section should be allowed to have any weight in the consideration of so important a matter.

In my previous letter I considered the subject from an economic standpoint only, and I appealed on behalf of but one section of the community, the agriculturists. I now propose, sir, to ask you to allow me to urge my case from another and broader point of view.

My argument, as set forth in my former letter, is "that, in consequence of the wholesale destruction of birds, which is constantly being carried on in the Maltese Islands, the preponderance of insect life is such that the farmers no longer find it profitable to engage in certain branches of agriculture, and as a result the agricultural prospects of the islands are at the present time in a very gloomy and deplorable condition." The remedy which I have suggested may be briefly summed up thus: "Preserve the birds."

But this wholesale extermination of our birds is productive of evils that directly affect not the agriculturist alone, but every class of the population; and it has, therefore, a much wider influence on the welfare of the community in general than would at a first glance be supposed.

The enormous increase in the numbers of the *Diptera*, of which the common house fly is perhaps one of the most homely examples, and the objectionable propensity that they have to feed promiscuously upon carrion, excrement, and all else that is filthy, after which they alight on our food and on our persons, constitutes a danger, the real extent of which is not generally appreciated. These insect scavengers are to be accounted among the most active propagators of disease, for wherever germs exist and flies are abundant there infection spreads with the greatest rapidity.

As an example of the manner in which disease is even now being spread in our midst by means of these insects, I may mention that loathsome eye affection, "ophthalmia," which is so prevalent in the casals. No one who has closely observed this disease and its symptoms can have failed to note the part that flies play in its propagation. They swarm around the eyes of the infected person; they smear their rostrums with the purulent matter, an infinitesimal portion of which is sufficient to communicate the disease to several persons; and then, leaving them, they alight on persons still healthy and introduce the matter into the blood. The disease has its origin in other causes than this, but this is one of the most common.

And then, passing on to our old, familiar, but by no means welcome, friend, the mosquito. Has any of my readers ever thought of the great risk of infection that they incur when bitten by one of these pests? I give it on the authority of our greatest medical writers that one of the most common mediums by means of which elephantiasis and leprosy are disseminated is by means of mosquitoes, which suck the *Filariæ* from the blood of infected persons and introduce them into the blood of healthy ones. Indeed, there seems to be no doubt but that every infectious disease may be, and often is, spread by means of these pests.

It is not my desire to act the rôle of an alarmist, but I think that no one should close his eyes to facts such as these, and the more especially so at such a time as this, when one of the most horrible of diseases is at our door, and when, owing to the ruthless slaughter of our birds, the insect life of the island in general, and the *Diptera* in particular, have increased so as to constitute a real scourge to the population.

It is not, therefore, in the interest of the agriculturist alone, serious as is that aspect of the case, that I make this appeal for protection for our feathered songsters and friends; neither is it out of any mere feelings of sentimentalism, though the wanton manner in which these industrious mites of creation are shot down for the mere gratification of a brutal instinct, which prompts man to destroy all that can not effectually resist him, might of itself serve as a sufficient motive to raise a storm of indignation in the minds of all who have the least appreciation for the sublime and beautiful in nature. I now look at it from a broader point of view—that in which the general good of humanity is concerned.

Here, sir, is a practical problem of the greatest importance. How is it to be solved?

No artificial measures can be half as effective as those which allow of Nature working out her own plans in her own way. Let Nature herself, therefore, supply the means for the extermination of the insect pests with which the islands are now being ravaged. Allow the birds to reëstablish themselves here by passing a law to protect them at certain seasons of the year; prohibit absolutely the shooting of all insectivorous species; and exercise a certain amount of supervision over the nests and the young of our indigenous species during the breeding season. It is only by adopting some such measures as these that we can hope to reëstablish the agricultural prosperity of these islands and to minimize the risks of infection in the event of the island being visited by those plagues that periodically sweep over every portion of the civilized world.

I am, etc.,

JOHN H. COOKE.

SHEFFIELD-AMERICAN TRADE.

REPORT BY CONSUL FOLSOM.

The total declared value of exports from this district to the United States during the year ended September 30, 1892, amounts to $2,350,474.74, which is an increase of $36,314.25 as compared with the corresponding period of last year. This increase is due to larger shipments of cutlery, and it should be further stated that in the year 1891 special orders for machinery of an uncommon class were executed at a cost of $56,668.20; thus the real increase in the general trade amounts to not less than $92,982.45.

The general trade of Sheffield is, however, far from being prosperous or satisfactory to the manufacturers, as business is dull, wages are low, many workmen are out of employment, and there appears to be no prospect of any improvement during the coming year. The effect of the new tariff has been to greatly reduce the trade of old and well-known firms with the United States and to shut out many of the smaller concerns.

Compared with the total exports for the year ended September 30, 1889 (a year before the McKinley tariff took effect), which amounted to $2,964,488.41, the exports of the current year show a falling off of a little more than $614,000. It is not to be wondered at, therefore, that Sheffield manufacturers and workmen complain loudly of a measure which affects them so seriously. One result has been that they have almost unanimously refused to make any exhibit or take part in the World's Fair at Chicago next year. They do not seem to recognize that this must prove a shortsighted policy, which will only tend to stimulate their business rivals to divert the trade which Sheffield has so long commanded.

The prices of shares in coal, iron, and manufacturing companies have greatly depreciated, and dividends have been cut down. To sum up the situation, business in Sheffield is bad and the outlook is not cheering.

The following figures show the total value of Sheffield exports from 1887 to the past year, inclusive:

Year.	Exports.	Year.	Exports.
1887	$4,120,579.95	1890	$3,364,415.14
1888	3,321,586.44	1891	2,314,160.49
1889	2,964,488.41	1892	2,350,474.74

The following is a detailed statement of exports to the United States for the year ended September 30, 1892:

Articles.	Value.	Articles.	Value.
Animals for breeding	$1,180.13	Optical goods	$287.76
Anvils	4,518.63	Pearl, manufactures of	29,598.82
Buckles, leather	3,347.66	Platinum	2,799.99
Button stuffs	1,981.57	Printed matter	702.66
Coal-tar preparations	2,449.43	Printing types	902.79
Copper	1,809 35	Raddle	2,818.79
Cotton blinds	335 24	Salted skins	81,756.60
Cutlery	629,093 98	Scythes, sickles, and grass hooks	6,372.94
Dairy preparations	1,015 12	Sheep dip	14,083.66
Dead oil in drums	1,781 39	Shoes and spikes	336.88
Edge and other tools	24,740 36	Silk goods	778.52
Electroplated and German-silver goods	1,664 04	Steel:	
Files	14,078 02	Wire, bars, sheets, etc	1,289,298.45
Glue	66,951 07	Boiler tubes and flues	9,851.21
Graining combs, steel	1,880 72	Cylinders	1,020.89
Grindstones	439.41	Forgings	302.98
Hair and fiber	12,143 86	Music wire	157.39
Horn:		Projectiles	27,287.26
Pieces	14,641.35	Wheels	1,550.88
Manufactures	18,524.02	Wire rope	1,219.78
Iron	2,809.98	Tungsten	858.46
Linens	26,790.20	Tuning forks, steel	1,832.27
Machinery	4,426.45	Umbrella ribs	2,320.50
Magnets	2,130.22	Wines and spirits	821.82
Measuring tapes, rules, and straight-edges	42,172.12	Sundries	1,768.89
Needles and pins, steel	1,153.01	Total	2,390,484.74

BENJAMIN FOLSOM,
Consul.

UNITED STATES CONSULATE,
Sheffield, October 17, 1892.

POTATO DISEASE IN BELGIUM.

REPORT BY CONSUL ROOSEVELT, OF BRUSSELS.

From experiments made at the Agricultural College of Belgium in 1889 and 1890 it has been found that—

(1) The use of the "bouillie bordelaise" constitutes an efficient means of combating the potato disease produced by the *Peronospora.*

(2) Although reducing in a considerable proportion the number of diseased tubers, the bouillie bordelaise does not reduce the total yield, nor the quality of starch of the potato.

(3) Under reserve of new experiments, it is recommended to apply the curative treatment, which consists of 50 kilograms of crystallized sulphate of copper and 25 kilograms of quicklime in 25 hectoliters of water per hectare, when the plants manifest the first symptoms of disease.

(4) It appears probable that a "bouillie" with an iron base composed of 50 kilograms of sulphate of iron, 25 kilograms of quicklime, and 2,500 liters

of water constitutes as efficient a remedy and a much cheaper one than the bouillie with a copper base. New experiments will control preliminary trials and develop the concentration and proper portions of this new remedy.

Experiments made in Government fields at Solieres, province of Liege, demonstrated that bouillie bordelaise with copper as well as iron base has not produced expected results.

A very remarkable experimental study has been published by Prof. O. Marek, of Kõnigsberg, Germany. The results obtained with fifty-eight varieties of potatoes have been so conclusive that the author did not hesitate to recommend to the German Government the adoption by legislative means of the use of bouillie bordelaise.

In most cases where the copper treatment has been employed at the proper time, and where a second and even third sprinkling was applied when the efficiency of the preceding ones had been compromised by rain after the application, the total crop has increased and the number of diseased tubers decreased.

New trials were made in 1891 less to furnish new proof of the efficiency of the copper treatment than to fix the most suitable period for its application (preventive and curative) and to try the new mixtures—bouillie with an iron base and sulphosucrate of copper.

EXPERIMENTS OF 1891.

The soil was sandy argillaceous, deep, and in a good state of cultivation. The surface of the parts was 10 square meters, separated by a vacant space of 50 centimeters. All trials were made double.

The manure was 200 kilograms of nitrate of soda, 500 kilograms of ashes from dephosphorization, and 500 kilograms of kainit to the hectare, applied in lines separated by 50 centimeters.

The variety of seed was Jeffe whole tubers of average size. The average weight was 72 grams.

On May 8 the regular hilling up was done, on June 10 to 15 the first hoeing. Hilling up after second hoeing was done on June 25.

The composition of the bouillie bordelaise was 50 kilograms of crystallized sulphate of copper, 100 kilograms of quicklime, and 2,500 liters of water to the hectare. The composition of the sulphosucrate of copper was 50 kilograms of sulphate of copper, 100 kilograms of lime in soft paste, 50 kilograms of molasses, and 2,500 liters of water to the hectare. The lime and molasses are diluted first in four-fifths of the total quantity of water, to which is added sulphate of copper which has been dissolved separately in the remaining quantity of water. This preparation is very highly esteemed in France for combating the cryptogamous disease of the grapevine, and Mr. Fouquet, the eminent director of the Government Agricultural Institute, has called attention to it. It presents a greater viscosity than the ordinary bouillie. This viscosity provokes a better suspension of the precipitate, which dispenses with the necessity of constantly agitating the liquid, and assures a more intimate and prolonged adhesion to the leaves.

The preventive applications were made on July 10. The first signs of the disease occurred on July 16. The curative application was made on July 18. The apparatus used was Durn's pulverizer.

The continuous wet weather which prevailed during the summer of 1891 caused the disease to develop rapidly. In the middle of August the parts not treated were seriously attacked; those which were sprinkled, especially such as were treated with sulphosucrate, were distinguishable from a distance on account of their verdure. A period of dry weather from September 4 to 14 somewhat arrested the ravages of the *Peronospora.* The crop was gathered on September 22.

Table showing the crop of 1891 per hectare (average of the two portions identically treated).

Description.	Quantity.		
	Healthy.	Diseased.	Total.
	Kilograms.	*Kilograms.*	*Kilograms.*
Medium	18,340	4,550	22,890
Bouillie bordelaise:			
Curative treatment	22,555	3,635	26,190
One-half preventive and one-half curative treatment	21,815	5,920	27,735
Sulphosucrate of copper:			
Curative treatment	23,840	2,035	25,875
One-half preventive and one-half curative treatment	23,100	3,640	26,740

The richness in fecula of the seeds was 19 per cent; the crop harvested did not average this. Plants which were treated averaged a higher percentage than those not treated. The medium was 16.8 per cent.

The percentage was as follows:

	Per cent.
Bouillie bordelaise:	
Curative treatment	17.5
One-half preventive and one-half curative treatment	17.5
Sulphosucrate of copper:	
Curative treatment	18.3
One-half preventive and one-half curative treatment	18.4

An analysis of a quantity of spoiled potatoes coming from various parts only indicated 9.9 per cent of starch.

In examining the preceding figures it will be observed that the application of the copper bouillies exercised an important influence on the total yield (healthy and diseased potatoes combined).

The comparative increase on portions not treated was:

	Kilograms.
Bouillie bordelaise:	
Curative treatment	3,300
One-half preventive and one-half curative treatment	4,845
Sulphosucrate of copper:	
Curative treatment	2,985
One-half preventive and one-half curative treatment	3,850

It is not admitted that this increase in the crop is due to the fertilizing action of 25 kilograms of lime or to 50 kilograms of sulphate of copper, which would have operated in the soil as diffusing or absorption agents of the carbonate of ammonia from the atmosphere. This increase is only explained by the most complete preservation and prolongation of the leaves. It is known that the injurious effects of the *Peronospora* manifest themselves in two ways: (1) Decreasing the production of organic substance by the destruction of the leaves; (2) infection of the potatoes by the spores falling on the soil or by mycelium propagating itself in the interior of the plant. Therefore, the copper salts, in destroying the mushroom, or at least in diminishing its vitality, exercise a beneficial influence not only in reducing the danger of infection, but also in prolonging the duration of the chlorophyll activity. In warm and damp weather leaves newly attacked, when examined by the aid of a magnifying glass, show the very rapid extension from the first point of attack and complete invasion of the whole leaf, with destruction of the cellular tissue and disappearance of the chlorophyll. When the coating of oxide of hydrated copper on a leaf well treated is removed with precaution by the aid of water very slightly acid, the spot of invasion is seen to be arrested and the rest of the leaf is perfectly intact. The microscopic preparation of the part attacked shows that all new formation of spores has stopped. The prolongation of the chlorophyll functions manifests itself not only by the increase of the crop, but also by an increased richness in starch. The same was observed in 1891 by Mr. De Vuyst, at Borsbeck les Alost.

The average richness in starch of seventeen varieties was as follows: Parts treated, 17.05 per cent; parts not treated, 15.9 per cent. The result of these trials, looked at from a purely practical side, shows that the copper treatment well applied will balance, in years when the disease reigns with intensity, by a considerable profit per hectare.

Description.	Healthy tubers gathered.	Value of crop at 6 francs per 100 kilograms.	Gross profit.	Expense of treatment.	Profit.
	Kilograms.	*Francs.*	*Francs.*	*Francs.*	*Francs.*
Medium	18,340	1,100	....	....	....
Bouillie bordelaise, average of the two methods of application	22,185	1,331	231	45	186
Sulphosucrate of copper, average of the two methods of application	22,970	1,378	278	50	228

CONCLUSIONS.

It is demonstrated from experiments made at the Agricultural School of Gembloux during the years 1889, 1890, and 1891 with the varieties Plate, Rykmakers, and Jeffe that treatment consisting of a dose of 50 kilograms of crystallized sulphate of copper to the hectare, under the form of the ordinary bouillie bordelaise or the molasses bouillie, constitutes an efficacious process for the sensible diminution of the injurious effects produced by the *Peronospora* of the potato. The beneficial action of the remedy manifests itself not only by an increase in the total yield and yield of healthy tubers, but also by an increase in the richness of starch. The process is practical, and produces an important benefit when applied to varieties most liable to the disease and under climatic influence of humidity and heat, which are most favorable to the development of the parasite. The copper is removed from the potato by washing.

In the trials made, the curative treatment, applied when the disease first appears, has been greater than the preventive treatment, that is to say, executed before the appearance of the mushroom. It is advisable, nevertheless, for general practice, to adopt a treatment half preventive and half curative, as the verification at the start of the disease requires a continual watchfulness and wide experience.

GEO. W. ROOSEVELT,
Consul.

UNITED STATES CONSULATE,
Brussels, September 28, 1892.

FOREIGN COMMERCE OF ITALY.

REPORT BY VICE-CONSUL-GENERAL WOOD, OF ROME.

Table showing the foreign commerce of Italy for the nine months ended September 30, 1892, compared with the same period of 1891.

IMPORTS.

Articles.	Nine months ended September 30—		Increase.	Decrease.
	1892.	1891.		
	Lire.	*Lire.*	*Lire.*	*Lire.*
Spirits, wine, and oils	16,372,018	21,069,166		4,697,148
Groceries, spices, and tobacco	57,846,483	57,838,620	7,863	
Chemicals, drugs, resins, and perfumery	30,422,477	30,825,455		402,978
Dyes, dyestuffs, and articles for tanning	18,749,170	16,164,309	2,584,861	
Hemp, flax, jute, etc	15,359,766	17,756,754		2,396,988
Cotton	112,375,596	120,830,485		8,454,889
Wool and hair	61,174,349	62,699,595		1,525,246
Silk	65,125,472	53,696,034	11,429,438	
Wood and straw	27,489,852	29,069,354		1,579,502
Books and paper	9,105,968	8,711,749	394,219	
Skins, hides, and furs	33,148,935	32,364,811	784,124	
Minerals and metals	86,830,740	91,189,967		4,359,227
Stone, earth, pottery, and glass	93,221,405	102,172,455		8,951,050
Cereals, flour, and vegetable products not elsewhere included	124,546,204	112,679,320	11,866,884	
Animals and animal products not elsewhere included	59,337,021	58,764,055	572,966	
Miscellaneous	11,873,942	11,041,142	832,800	
Total	822,969,416	826,873,271		3,903,855
Silver and gold (bullion)	32,495,800	41,039,800		8,544,000
Grand total	855,465,216	867,913,071		12,447,855

Table showing the foreign commerce of Italy, etc.—Continued.

EXPORTS.

Articles.	Nine months ended September 30—		Increase.	Decrease.
	1892.	1891.		
	Lire.	*Lire.*	*Lire.*	*Lire.*
Spirits, wine, and oils	107,177,229	81,939,963	25,237,266	
Groceries, spices, and tobacco	3,001,402	4,905,372		1,903,970
Chemicals, drugs, resins, and perfumery	30,269,979	26,947,665	3,322,314	
Dyes, dyestuffs, and articles for tanning	7,296,116	5,974,456	1,321,660	
Hemp, flax, jute, etc	28,647,483	25,675,552	2,971,931	
Cotton	22,358,250	20,357,078	2,001,172	
Wool and hair	9,418,508	7,109,938	2,308,570	
Silk	223,545,090	195,512,364	28,032,726	
Wood and straw	22,052,832	21,601,139	451,693	
Books and paper	5,511,736	5,450,015	61,721	
Skins, hides, and furs	16,015,470	18,886,898		2,871,428
Minerals and metals	32,802,946	24,545,533	8,257,413	
Stone, earth, pottery, and glass	45,376,308	42,351,842	3,024,466	
Cereals, flour, and vegetable products not elsewhere included	56,736,893	55,944,392	792,501	
Animals and animal products not elsewhere included	72,235,728	74,478,532		2,242.804
Miscellaneous	9,502,925	8,265,950	1,236,975	
Total	691,948,895	619,946,689	72,002,206	
Silver and gold (bullion)	45,294,400	46,142,200		847,800
Grand total	737,243,295	666,088,889	71,154,406	

CHARLES M. WOOD,
Vice-Consul-General.

UNITED STATES CONSULATE-GENERAL,
Rome, October 27, 1892.

FERTILIZERS IN GUADELOUPE.

REPORT BY CONSUL BARTLETT.

There are imported annually from France and England into this colony from 800 to 1,000 tons of fertilizers. There is also at Point-à-Pître a manufactory of fertilizers owned by the director of the largest sugar usine in the colony, which has connected with it several large plantations. It only manufactures enough for the usine plantations. The greater part of the usines and sugar estates in the colony are mortgaged to or owe parties in France, who furnish them plantation supplies; therefore, it would be very difficult, even if a better article and at a reduced price, to place fertilizers on this market.

About two years ago a party in Boston sent me 3 barrels of fertilizers as a sample, with the analysis and circular, requesting me to give them to three of the principal planters in the colony for a trial. I gave one to the Credit

Foncier Colonial, which owns six usines and all the plantations connected with them, besides fifty-two other estates. The director of this company promised to give it a fair trial and report to the parties in Boston the result. I also gave one to the owner of a usine and one to the director of another large usine, who promised to give it a trial. I thought no more about the matter until the receipt of the Department circular, and then I began to make inquiries about the result of the 3 barrels of fertilizers. I found that one of the parties had not even touched his; it was stowed away in his magazine. The other two could not give me much information as to the results. I am led to believe that they cared very little as to the results, but merely received the fertilizers out of politeness.

CHARLES BARTLETT,
Consul.

UNITED STATES CONSULATE,
Guadeloupe, September 5, 1892.

AUSTRO-AMERICAN EXPORTS.

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

I have the honor to transmit herewith a statement showing the value of declared exports from the consular districts of Austria-Hungary to the United States during the quarter ended September 30, 1892.

The total value of declared exports during the quarter was $4,079,642.83, showing an increase of $1,482,996.90 when compared with the same quarter of 1891 and an increase of $1,411,806.94 over the same quarter of 1890. The consular district of Prague shows an increase of $810,992.35; Reichenberg, $199,338.62; Buda-Pesth, $90,456.04; Trieste, $211,520.56; and Vienna, $170,689.23.

The following articles have an increase as compared with the September quarter in 1891:

Articles.	Increase.	Articles.	Increase.
Art, works of	$5,760.17	Jewelry	$64,897.58
Beans and lentils	44,952.76	Leather and skins	22,036.26
Bed feathers	34,232.35	Leather goods	7,900.57
Beer	4,274.77	Linen goods	44,398.34
Beet-root sugar	889,372.62	Mineral water	25,056.06
Buttons	17,670.65	Ozocerite, etc	6,605.39
Cotton goods	21,040.33	Paper goods	12,493.67
Fans	31,594.36	Porcelain, etc	34,471.36
Fruits, dried	132,008.03	Pulp	24,592.84
Furniture	15,358.15	Smokers' articles	10,040.25
Glassware	11,437.74	Umbrella fixtures	10,394.43
Gloves	72,397.30	Wooden goods	8,000.88
Herbs, roots, etc	3,749.17	Wool	50,230.70
Insect powder	6,997.34		

The following articles show a decrease as compared with the September quarter in 1891:

Articles.	Decrease.	Articles.	Decrease.
Argols	$35,438.19	Metal goods	$2,509.24
Carlsbad Sprudel salt	6,206.24	Mirror glass	19,138.87
Cloth and woolen goods	32,400.53	Silks and velvets	18,344.77
Drugs and chemicals	23,452.07	Wines and liquors	9,914.23
Meerschaum, crude	6,671.69		

Table showing the value of declared exports from the consular districts of Austria-Hungary (agencies included) to the United States during the quarter ended September 30, 1892.

Articles.	Buda-Pesth.	Prague.	Reichenberg.	Trieste.	Vienna.	Total.
Albumen					$6,637.58	$6,637.58
Amber					1,475,57	1,475.57
Argols				$2,259.36	1,389.34	3,648.70
Art, works of		$2,345.15			9,386.58	11,731.73
Artificial flowers		315.04	$1,665.10		992.94	2,973.08
Baskets and basket ware		1,268.36	1,018.26		5,911.29	8,197.91
Beans and lentils	$26,632.02	10,299.20		23,648.41	5,597.35	66,176.98
Bed feathers		86,204.19				86,204.19
Beer		25,459.33				25,459.33
Beet-root sugar		1,523,738.42		98,224.64		1,621,963.06
Black lead		4,837.48				4,837.48
Books and papers	755.93	3,078.10			2,195.37	6,029.40
Bonnet frames			1,122.05			1,122.05
Brushes and bristles	633.72		278.38		3,782.88	4,694.98
Buttons		12,188.63	36,303.15		72,499.12	120,990.90
Carlsbad Sprudel salt		6,730.68				6,730.68
Chenilles and embroideries		8,758.43			842.38	9,600.81
Cloth and woolen goods		4,888.47	4,799.53		21,985.36	31,673.36
Cotton goods		4,211.30	2,450.34		65,835.67	72,497.31
Cutlery		453.61	2,560.89			3,014.50
Cuttle bones				5,667.24		5,667.24
Dresses					1,701.95	1,701.95
Drugs and chemicals	255.07	8,805.11		3,901.18	11,059.91	24,021.27
Fans					83,612.40	83,612.40
Fruits, dried, etc	48,133.06	15,404.63		92,077.11		155,614.80
Furniture	2,234.60	2,297.91	929.80		37,677.06	43,139.37
Glassware	5,893.42	65,184.17	207,175.26		26,250.22	304,503.07
Gloves		69,635.88			40,353.05	109,988.93
Gum and glue	4,382.95			6,948.68	2,492.47	13,824.10
Hair:						
Animal		1,279.26			2,592.68	3,871.94
Human		6,658.61				6,658.61
Herbs, roots and leaves	1,459.32			14,607.83		16,067.15
Insect powder and flowers				10,404.56	143.98	10,548.54
Jewelry		6,777.26	95,685.63		624.09	103,086.98
Leather and skins		4,815.61		18,344.38	33,034.53	56,194.52
Leather goods					24,260.78	24,260.78
Linen goods		24,568.40	98,201.84		107,415.13	230,185.37
Machines and parts of					1,589.06	1,589.06
Meerschaum, crude					6,891.20	6,891.20
Metal goods		3,789.89	1,622.34	305.03	43,965.04	49,682.30
Mineral water	37,853.82	7,041,46				44,895.28
Mirror glass		1,537.04				1,537.04

Table showing the value of declared exports from Austria-Hungary, etc.—Continued.

Articles.	Buda-Pesth.	Prague.	Reichenberg.	Trieste.	Vienna.	Total.
Musical instruments		$9,901.50	$288.61		$2,599.70	$12,789.81
Oils, paints, and colors			117.39	$2,307.71	1,429.98	3,855.08
Ozocerite and ceresin					10,136.17	10,136.17
Paper goods		15,239.94			3,379.63	18,619.57
Porcelain and pottery	$7,726.44	202,753.72	44,097.03		20,288.45	274,865.64
Polishing earth				970.51		970.51
Potash		13,358.98				13,358.98
Pulp	13,900.43	33,583.26		3,733.38	13,329.24	64,546.31
Scientific instruments					3,243.19	3,243.19
Seeds	2,390.61			1,697.96		4,088.57
Silks and velvets		1,202.34			55,668.66	56,871.00
Skeletons		456.04				456.04
Smokers' articles		907.26	148.05		44,572.16	45,627.47
Shell and bone goods				6,469.38	3,170.77	9,640.15
Sponges				2,754.30		2,754.30
Stained glass					1,755.09	1,755.09
Stationery		1,166.80			5,187.47	6,354.27
Toys		3,641.73	1,705.10		4,200.43	9,547.26
Umbrella fixtures, etc.	4,918.82				14,605.99	19,524.81
Wax figures					1,374.54	1,374.54
White lead				4,191.35		4,191,35
Wines and liquors	12,515.68	404.74		382.05	12,468.10	25,770.57
Wooden goods		652.76	4,352.02	1,714.22	18,150.27	24,869.27
Wool		37,982.19			26,774.14	64,756.33
Miscellaneous	1,000.07	2,294.13	842.16		2,338.69	6,475.05
Total	170,685.96	2,236,117.01	505,362.93	300,609.28	866,867.65	4,079,642.83
Same quarter:						
1891	80,229.92	1,425,124.56	306,024.31	89,088.72	696,178.42	2,596,645.93
1890	110,957.59	775,138.69	294,775.61	208,258.92	1,278,705.08	2,667,835.89
1889	84,667.92	847,783.88	177,379.45	183,194.57	1,088,566.07	2,381,591.89
Increase of September quarter, 1892, over September quarter, 1891	90,456.04	810,992.45	199,338.62	211,520.56	170,689.23	1,482,996.90

JULIUS GOLDSCHMIDT,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Vienna, October 10, 1892.

ROUMANIAN COMMERCE.

REPORT BY MINISTER SNOWDEN, OF BUCHAREST.

I have the honor to inclose a report on the population, imports, and exports of Galatz and Braila, Roumania, made to me by Mr. W. F. Newman, a gentleman of good standing in Braila.

A. LOUDON SNOWDEN,
Minister.

UNITED STATES LEGATION,
Bucharest, September 30, 1892.

MR. NEWMAN TO MINISTER SNOWDEN.

[Inclosure in Minister Snowden's report.]

BRAILA, *August 29, 1892.*

I have the honor to transmit to you a comparative table of the population, imports, and exports of the ports of Galatz and Braila.

POPULATION.

Table showing the population in 1882 and 1892.

Places.	1882.	1892.
Galatz port	45,000	59,143
Braila port	30,000	47,715
Braila district	68,277	118,731

From this it will be seen that during the last ten years the population of Braila port has increased nearly 18,000 and the population of the district of Braila 50,000.

IMPORTS.

Table showing the imports from 1886 to 1890.

Year.	Galatz.	Braila.
	Tons.	*Tons.*
1886	125,311	93,062
1887	112,152	121,034
1888	151,710	129,436
1889	122,762	150,741
1890	165,115	142,920

It will be seen from the above that the imports at Galatz during the years 1886–'90 exceeded those of Braila; but the imports through Braila have steadily increased year after year, and it is very probable that when the reports for 1892 are published it will be found that more goods have been imported at Braila than at Galatz.

EXPORTS.

Table showing the exports from 1886 to 1890.

Year.	Galatz.	Braila.
	Tons.	*Tons.*
1886	210,075	543,247
1887	246,568	537,713
1888	294,005	648,220
1889	343,484	703,042
1890	262,520	652,724

It will be seen that the exports from Braila during the years 1886–'90 exceed those from Galatz by 1,728,294 tons.

ROUMANIAN TRADE WITH THE UNITED STATES.

Imports.—The American manufactured goods arriving in Roumania have been transshipped at Liverpool, London, Antwerp, or Rotterdam, and in consequence are erroneously declared as goods of British, Belgian, or German manufacture; so that there are no official returns for goods imported from the United States. The principal imports from the United States are agricultural machinery and implements. The trade in some articles, such as binders, is steadily increasing, and there is no doubt a lucrative market could be opened out in this district for American manufactures of machinery, hardware, tools, etc., if there was an American vice-consul to put the manufacturers in connection with the consumers in this district.

Exports.—The only article I know of exported from Roumania which finds a market in the United States is wool.

W. F. NEWMAN.

IMPORTS AND EXPORTS AT MONTEVIDEO.

REPORT BY CONSUL HILL.

Table showing the imports and exports at Montevideo during the first six months of 1892.

IMPORTS.

Articles.	First quarter.	Second quarter.
Liquors, etc.	$747,750.33	$718,713.52
Comestibles, spices, and cereals	1,029,765.17	1,179,476.72
Tobacco and cigars	95,020.44	90,322.05
Dry goods	884,225.23	600,417.03
Haberdashery, etc.	345,505.52	251,236.94
Machinery, building materials, etc.	1,077,961.32	855,177.55
Miscellaneous	576,718.65	621,026.92
Live cattle	39,990.20	13,432.00
Total	4,796,936.86	4,319,792.73

EXPORTS.

Animals on the hoof	253,472.50	684,745.00
Cattle and cattle products	7,976,172.04	6,644,264.34
Agricultural and dairy products	68,749.81	15,028.56
Miscellaneous products	62,860.93	57,177.51
Articles for provision of vessels	37,046.75	28,744.60
Total	8,398,302.03	7,429,960.01

RECAPITULATION.

Quarter.	Imports.	Exports.
First	$4,796,936.86	$8,398,302.03
Second	4,319,792.73	7,429,960.01
Total	9,116,729.59	15,828,262.04

F. D. HILL,
Consul.

UNITED STATES CONSULATE,
Montevideo, October 8, 1892.

AMERICAN TRADE IN SINGAPORE.

REPORT BY CONSUL WILDMAN.

I have several times called attention to the fact that, in my estimation, there was an opening for a first-class American importing and exporting firm in the Straits Settlements. A large number of letters from American firms have come to hand asking as to the advisability of embarking sums all the way from $5,000 to $30,000 in this or that commercial undertaking. In former dispatches I did not intend to intimate that the ordinary retail trade of this colony was not well covered by local firms; in fact, I think it overdone. It was the one branch of wholesale exporting and importing that I referred to, and such a firm, if started by American capital and enterprise, must be on the soundest and most reliable basis. It must command the confidence and good will of the leading import firms in New York and Boston; otherwise, it could not expect to compete for the American business with the old and well-known English and German firms who now conduct it.

In round numbers, the direct trade of the Straits Settlements with the United States is $12,000,000 yearly, of which the exports to the United States amount to $10,000,000 and the imports from the United States to $2,000,000. This great trade is conducted solely by English and German firms. There is not one American firm or American commission broker here.

It would seem a very simple matter for such an American firm as I have suggested to open business almost with the assurance of handling this $12,000,000-a-year trade.

In the first place, the balance of trade at present is all against the United States in the proportion of 1 to 6. This would soon be corrected by an American firm.

The English and German merchants take the $10,000,000 received from the United States and buy clothes, goods, machinery, provisions, etc., in Germany and Great Britain, which they sell to the 1,000,000 inhabitants of this colony. They buy almost nothing in the United States outside of petroleum, which is not a matter of choice.

I have compiled from the Colonial Blue Book for the quarter ended December 31, 1891, a statement showing the articles and their value that were exported to and imported from the United States for that quarter. The list only gives the direct trade figures. There is a large indirect trade with the United States that goes through London, Germany, and Hongkong, which is necessarily credited to those ports, that is intended ultimately for the United States. Of course, this would be to a certain extent stopped by an American house shipping direct. The indirect import trade is also very large. An hour's inspection of the stocks of the leading retail stores in Singapore would reveal more American goods than is shown in five years of blue-book returns. This trade would also naturally be controlled by an American firm buying direct.

Table showing trade with the United States for the quarter ended December 31, 1891.

Articles.	Imports.	Exports.
Cabinet ware	$468.00	
Coffee		$32,944.00
Fruits, preserved	2,545.00	1,864.00
Gambier		80,438.00
Borneo rubber		3,418.00
Copal		45,198.00
Dammar		875.00
Gutta-percha		17,258.00
Machinery	1,125.00	
Tin		1,183,299.00
Brass ware	470.00	
Hardware	660.00	
Milk	400.00	
Musical instruments	40.00	
Petroleum	233,545.45	
Oils, native		2,070.00
Fish	940.00	
Rattans		103,644.00
Shells		1,075.00
Cloves		740.00
Cubebs		1,900.00
Nutmegs		15,090.00
Pepper:		
Black		95,607.00
Long		15,353.00
White		2,370.00
Tapioca		1,090.00
Flour		12,185.00
Tobacco	1,400.00	27,191.00
Timber	880.00	

In both imports and exports for the year 1891 there was a decided decrease over 1890, owing to failures among the natives and the violent fluctuation of silver. The year 1892 starts with bright prospects, and it is hoped that it will show an increase over 1890.

The true value of the vast trade of this consular district with the United States can only be fully appreciated by comparing it with our trade with other countries for the year ended June 30, 1891.

I find that the trade of the Straits Settlements that passed through this consulate was equal in value to our trade with Austria-Hungary, Prussia, Haiti and Santo Domingo, or with Nova Scotia, New Brunswick, and Prince Edward Island together; that it was twice as large as our trade with Portugal and Denmark, or with British Columbia, Newfoundland, and Labrador together; that it was ten times as large as our trade with Turkey in Europe, and eighteen times as large as our trade with Greece; that it was larger than that with any country in South America, save Brazil and Venezuela, and larger than our entire trade with Africa.

How many American firms there are in the many countries I have named I would not dare to compute, not mentioning over a hundred consuls and more than a dozen legations, all of whom are doing their best to push our commercial interests.

These few figures and facts which I have given, I trust, will convey some idea of the vast trade of this small colony and act as an incentive to American competition.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, May 30, 1892.

CREFELD-AMERICAN TRADE.

REPORT BY CONSUL BLAKE.

Only a few articles are manufactured in this district which are designed for the South American republics. So far as I can learn, there are no exports to Mexico or to the West Indies of Crefeld manufactures.

For the past few years the export trade to the South American countries has been rather limited, on account of the unsettled condition there. Of late, however, there has been a better feeling in commercial circles in those republics. The demand for textiles, such as velvets, plushes, and cotton goods for wearing apparel is very good. The lower grades of velvets are principally exported. All or nearly all of these are commonly known as "Schappe" velvets, for the manufacture of which this district is especially noted. Many years of experience has enabled the manufacturers here to produce a quality of goods superior to those manufactured in any other section of Europe, both in quality and price. They are manufactured in the manner and under the same conditions as similar qualities which are intended for the markets of the United States. It is especially necessary that the goods designed for that market should be of as light weight as possible without detriment to the quality.

Plushes of the lower quality only are sent to those republics. The better and heavier grades are seldom called for, on account of the climatic conditions of that section. In the manufacture and finish of plushes it is essential that caution should be used to have material of the lightest possible weight.

The prices for velvets and plushes are the same as for similar goods which are exported to the United States.

There is now a large and increasing demand for cotton goods for wearing apparel. Two grades are manufactured for that market, the lower quality being made in plain, checked, and striped colors. The plain goods are commonly known in the United States as "Kentucky jeans." The prices range from 10½ to 12½ cents per yard. The better and heavier qualities are in more demand than the lower grades. These are only made in striped and checked colors. Prices of these goods range from 16 to 21 cents per yard. Both grades are in single width—28 inches wide.

All textile goods are carefully packed. In the first place care is taken that the cartons are well dried before the goods are placed therein, as cotton goods and all material containing cotton are liable to absorb moisture from the newly made box. Then the cartons are packed in light-weight tin cases and securely soldered, so that they are impervious to the moisture to which they are exposed while in transit. The tin case is then placed in a wooden box made of as light material as will insure safety in its transportation.

In former years leather designed for trunk and valise purposes was exported in large quantities to the South American republics, but the demand at the present time is not very good. The process of tanning is similar to that adopted in the United States. Oak bark is the only material in use for tanning all kinds of leather in this part of Germany. I am informed that in the southern part of Germany a patent preparation in a liquid form is used. Great care is taken in the preparation of this leather after it has passed through the regular tanning process. The leather so tanned is then split and the better half only is used for export. It is then stretched upon a wooden frame, when a black composition of oil, etc., is spread upon the split side. The leather so prepared is then placed in the open air and sun until it is fully dry. The price of this leather is 22 to 33 cents per pound.

I am unable to give the cost of transportation, as these goods are not sold direct to merchants there, but are purchased by exporters or commission men residing either in Paris, Berlin, or Hamburg.

EVANS BLAKE,
Consul.

UNITED STATES CONSULATE,
Crefeld, August 17, 1892.

AMERICAN COAL IN MARTINIQUE.

REPORT BY CONSUL KEEVIL.

About two years ago American coal was unknown, comparatively, in this island; only an occasional small cargo was imported. Now the conditions are reversed, the imports from Philadelphia and Baltimore amounting to nearly 5,000 tons per month. The Compagnie Générale Transatlantique takes fully 4,000 tons of that amount, and the usines or sugar factories the rest of the imports. It appears to give satisfaction. The cost delivered here is about $5 per ton, while English coal delivered costs about $5.38. I have taken the trouble to instruct consumers in the economical use of our coal by informing the firemen how we use it on the Ohio and Mississippi steamboats, and with good results.

If our shippers keep up or exceed the present quality of their consignments, there is no reason why we should not control this market.

ALFRED B. KEEVIL,
Consul.

UNITED STATES CONSULATE,
Martinique, December 5, 1892.

GERMAN EXPORTS TO THE UNITED STATES.

REPORT BY CONSUL-GENERAL MASON, OF FRANKFORT.

I transmit herewith a condensed statement showing the total values of declared exports to the United States from the district of this consulate-general and the several consulates under its supervision during the third quarter of 1892 and the corresponding period in each of the four preceding years.

As will appear from this exhibit, the exports during the past quarter exceed those of the September quarter in every preceding year except 1890, when they were abnormally increased during the three months preceding the date at which the tariff law of that year took effect, and they now exceed by $207,504 the average exports of the same quarters during the four previous years, including 1890.

The apparent loss from Sonneberg during the past quarter is explained by the fact that during the year independent consular offices have been created at Bamberg and Erfurt, both of which cities and their districts had previously formed part of the consular district of Sonneberg.

The exports from the immediate consular district of Frankfort during the quarter just ended exceed those for the same period in any preceding year, as follows:

1888	$819,114.25
1889	901,118.37
1890	1,041,456.07
1891	934,331.48
1892	1,084,446.87

Table showing the exports to the United States during the third quarter of 1891 and 1892.

Consulates.	1891.	1892.	Increase.	Decrease.
Aix la Chapelle	$446,072.32	$438,119.02		$2,953.30
Bamberg	(*)	129,043.10	$129,043.10	
Barmen	1,460,684.36	1,662,459.31	201,774.95	
Cologne	672,002.33	677,626.59	5,624.26	
Crefeld	1,140,685.71	1,039,569.38		101,116.33
Düsseldorf	282,148.17	402,983.55	120,835.38	
Erfurt	(*)	262,968.40	262,968.40	
Frankfort	934,331.48	1,084,446.87	150,115.39	
Fürth	771,754.83	772,014.47	259.64	
Kehl	472,444.15	452,942.75		19,501.40
Mannheim	935,007.56	1,256,504.22	321,496.66	
Mayence	524,094.95	577,007.48	52,912.53	
Munich	237,616.16	321,590.05	83,973.89	
Nuremberg	381,928.93	355,893.89		26,035.04
Sonneberg	1,404,964.43	994,535.32		410,429.11
Stuttgart	334,423.60	328,998.96		5,424.64
Total	9,998,258.98	10,756,703.36	1,329,004.20	570,459.82
Net increase			758,544.38	

* Belonged to Sonneberg.

Total exports during the third quarters of the past five years were as follows:

1888	$9,785,751.98
1889	10,159,458.32
1890	12,253,430.01
1891	9,998,158.98
1892	10,756,703.36
Excess in 1892 above average of preceding four years	207,504.07

FRANK H. MASON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Frankfort, October 6, 1892.

GERMAN FIRE STATISTICS.

REPORT BY COMMERCIAL AGENT WASHBURN, OF MAGDEBURG.

The great variety of fire systems, many of them the slow outgrowth of years, in vogue in the different German cities makes any intelligent comparison of them impossible. Aside from the professional and volunteer force of firemen, there is—notably in some of the smaller cities—an established compulsory service.

Of 8,410 fires tabulated during 1890, the distribution according to the months in which they occurred is as follows:

Month.	Number.	Per cent.
January	967	11.6
February	767	9.1
March	777	9.2
April	563	6.7
May	622	7.4
June	577	6.9
July	482	5.7
August	507	6
September	575	6.8
October	662	7.9
November	800	9.5
December	1,111	13.2

Eight thousand and ninety-four are classified according to origin as follows:

Origin.	Number.	Per cent.
Carelessness	3,463	42.8
Defective flues, etc	456	5.7
Uncleaned chimneys	570	7
Business houses handling combustible articles	171	2.1
Overheating	162	2
Other known causes	1,562	19.3
Incendiarism	74	0.9
Through unknown causes	1,637	20.2

Table showing the number of firemen and apparatus.

Cities.	Firemen.		Stations.	Steam fire engines.	Other engines, hose carriages, etc.	Horses.	Hydrants.
	Professional.	Volunteer.					
Berlin	780	......	14	8	66	118	4,449
Hamburg	280	......	6	23	86	38	4,999
Leipsic	127	......	4	4	74	32	1,100
Munich	63	725	1	1	17	22	1,601
Breslau	186	......	6	1	27	54	1,731
Cologne*	71	14	3	1	38	14	1,800
Dresden	129	......	9	......	30	6	1,754
Magdeburg	122	......	4	2	21	12	1,121
Frankfort-on-the-Main	61	208	2	1	14	12	1,500
Hanover	54	68	3	2	19	13	1,232
Königsberg	96	......	4	2	30	8	425
Düsseldorf	......	......	2	......	21	6	816
Altona	62	60	1	2	16	9	427
Nuremberg	......	330	1	1	21	18	1,100
Stuttgart	......	1,624	1	2	38	......	1,455
Chemnitz	22	460	1	1	34	4	730
Elberfeld	......	100	......	......	34	......	881
Bremen	109	......	4	2	20	23	1,120
Strasburg	......	......	1	......	83	......	730
Dantzic*	90	......	2	1	35	20	490
Barmen	1	690	......	......	30	......	591
Crefeld	......	270	......	......	28	......	700
Aix la Chapelle	30	......	3	......	12	6	600
Halle	30	70	1	......	6	2	......
Dortmund	1	286	......	......	17	......	420
Mannheim	......	327	......	1	32	38	368
Essen*	......	......	......	......	18	......	......
Charlottenburg	78	......	1	......	10	14	407
Augsburg*	......	......	......	1	14	......	705
Carlsruhe	......	420	......	1	12	......	480
Mayence	......	176	......	......	40	2	755
Cassel	18	275	......	......	16	......	521
Erfurt	......	70	......	......	17	......	484
Posen	30	100	1	2	14	18	330
Kiel*	7	......	1	......	17	......	285
Wiesbaden	30	480	1	......	12	......	612
Lübeck	4	......	1	2	20	22	580
Görlitz	......	66	......	......	16	6	372
Metz	......	......	1	......	16	......	343
Duisburg*	......	......	1	......	30	......	429
Frankfort-on-the-Oder	12	......	3	......	18	14	350
Potsdam*	42	......	1	......	21	16	353

* Compulsory service.

Table showing the expenses of the fire departments.

Cities.	Total cost.	Distribution.		Share borne by insurance companies, etc.	Amount paid by cities.	Cost per head of population.	Paid by municipal authorities per head.
		Personal expenses.	Impersonal expenses.				
	Marks.	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*	*Marks.*
Berlin	1,391,405	....	....	....	....	0.81	———
Hamburg	615,527	449,375	166,152	....	....	.90	———
Leipsic	243,036	163,122	79,914	43,804	199,200	.69	0.56
Munich	151,433	77,371	67,100	68,000	83,433	.44	.24
Breslau	296,051	184,274	111,777	50,068	246,983	.88	.74
Cologne	169,803	97,395	72,408	900	281,273	.61	.60
Dresden	192,345	151,517	40,828	39,993	152,351	.70	.55
Magdeburg	154,900	18,120	136,780	....	154,900	.76	.76
Frankfort-on-the-Main	151,895	99,380	52,514	....	151,895	.84	.84
Hanover	75,015	50,804	24,211	....	75,015	.45	.45
Königsberg	91,730	77,908	13,822	....	91,730	.56	.56
Düsseldorf	58,500	37,635	20,865	....	58,500	.40	.40
Altona	123,807	38,306	85,501	....	123,807	.85	.85
Nuremberg	52,500	28,300	24,200	2,600	49,900	.36	.35
Stuttgart	32,718	7,515	25,203	4,619	28,099	.23	.20
Chemnitz	46,715	30,085	16,630	19,692	27,023	.33	.19
Elberfeld	16,500	6,982	9,518	....	16,500	.13	.13
Bremen	177,158	122,350	54,808	....	177,158	1.41	1.41
Strasburg	42,030	28,935	13,094	....	42,030	.34	.34
Dantzic	68,981	56,316	12,665	....	68,981	.57	.57
Barmen	10,000	1,400	8,600	....	10,000	.08	.08
Crefeld	12,204	1,800	10,404	....	12,204	.11	.11
Aix la Chapelle	52,444	34,424	18,020	....	52,444	.50	.50
Halle	26,264	12,961	13,303	....	26,264	.25	.25
Dortmund	5,850	1,700	4,150	500	5,350	.07	.06
Mannheim	15,072	4,595	10,477	....	15,072	.18	.18
Essen	2,644	900	1,744	....	2,644	.03	.03
Charlottenburg	16,000	1,925	14,075	195	15,805	.29	.26
Augsburg	17,952	10,447	7,505	2,000	15,952	.24	.20
Carlsruhe	5,000	....	5,000	....	5,000	.07	.07
Mayence	23,240	14,280	8,960	....	23,240	.31	.31
Cassel	15,178	7,885	7,392	....	15,178	.21	.21
Erfurt	4,414	2,274	2,140	....	4,414	.06	.06
Posen	44,432	28,421	16,011	1,500	42,932	.63	.61
Kiel	15,150	9,491	5,659	5,930	9,220	.22	.13
Wiesbaden	14,050	9,050	5,000	....	14,050	.22	.22
Lübeck	38,114	28,324	9,790	....	38,114	.60	.60
Görlitz	3,453	....	....	....	3,453	.05	.05
Metz	22,000	14,838	7,162	....	22,000	.36	.36
Duisburg	4,157	1,455	2,702	....	4,157	.07	.07
Frankfort-on-the-Oder	25,544	18,265	7,268	973	24,571	.44	.46
Potsdam	18,347	9,436	8,911	....	18,347	.34	.34

Table showing the number of fires.

Cities.	Number of fires.				False alarms.
	Large.	Moderate.	Small.	Total.	
Berlin	52	127	3,719	3,898	118
Hamburg	10	13	816	839	511
Leipsic	5	17	382	404	10
Munich	8	14	73	95	12
Breslau	4	4	158	166	52
Cologne	10	23	260	293	69
Dresden	3	26	284	313	30
Magdeburg	25	13	110	148	13
Frankfort-on-the-Main	3		136	139	11
Hanover	2	13	73	88	6
Königsberg	13	13	87	113	6
Düsseldorf	4	24	229	257	13
Altona	12	15	126	153	34
Nuremberg	2	11	39	52	3
Stuttgart	2	7	70	79	.....
Chemnitz	6	8	97	111	16
Elberfeld	2	9	64	75	1
Bremen	.....	1	381	382	216
Strasburg	12	42	33	87	2
Dantzic	11	10	74	95	28
Barmen	2	5	20	27	.....
Crefeld	3	10	18	31	.....
Aix la Chapelle	3	4	68	75	12
Halle	3	5	111	119	5
Dortmund	4	10	45	59	.....
Mannheim	6	1	54	61	4
Essen	.....	4	56	60	.....
Charlottenburg	5	5	12	22	.....
Augsburg	.....	2	18	20	.....
Carlsruhe	4	1	.....	5	1
Mayence	1	4	27	32	.....
Cassel	1	2	5	8	2
Erfurt	2	1	92	95	.....
Posen	.....	7	68	75	18
Kiel	3	7	23	33	.....
Wiesbaden	3	.....	18	21	2
Lübeck	8	.....	20	28	3
Görlitz	6	.....	58	64	.....
Metz	.....	22	51	73	2
Duisburg	2	5	61	68	.....
Frankfort-on-the-Oder	3	7	2	12	5
Potsdam	2	6	9	17	2

ALBERT H. WASHBURN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Magdeburg, December 13, 1892.

BRITISH SHIPBUILDING IN 1892.

REPORT BY CONSUL BROWN, OF GLASGOW.

Shipbuilding in the United Kingdom for the year 1892 has been, in some respects, phenomenal.

Freight rates at the close of 1891 were exceedingly low; so low, indeed, as to lead to the prediction on the part of many that the output of new ships for 1892 would be greatly reduced as compared with the preceding year. Such predictions appeared reasonable, for, with freights down to a nonpaying rate, what incentive could there be for building more ships? But, notwithstanding the conditions named and the predictions to the contrary, there was built in the United Kingdom some thousands of tons in excess of 1891, and reaching the enormous total of 1,280,001 tons.

The figures in detail for the two years are as follows, the total for 1891, however, only being given:

District.	1892.					Total for 1891.
	Sailing.		Steam.		Total.	
	No.	Tons.	No.	Tons.		
					Tons.	*Tons.*
Clyde	196	161,452	164	174,962	336,414	326,475
Forth	16	22,274	15	11,379	33,653	39,200
Tay	8	6,099	8	16,191	22,290	21,817
Dee	....	....	13	2,414	3,414	6,724
Royal yards	....	....	9	50,450	50,450	60,100
Tyne	14	8,492	102	198,718	207,210	185,283
Wear	11	18,483	65	172,319	190,802	192,150
Tees	4	4,812	43	94,467	99,279	121,032
Hartlepools	....	....	33	90,924	90,924	96,993
Humber	6	818	42	14,475	15,293	18,611
Mersey	25	18,524	10	20,806	39,330	28,383
Thames	29	4,085	34	18,292	22,377	10,741
Barrow	1	1,730	14	25,341	27,071	31,444
Other English ports	20	29,488	25	12,187	41,675	23,041
Belfast	12	15,049	20	78,277	93,326	92,429
Londonderry	4	6,493	....	....	6,493	11,947
Total	286	297,799	597	982,202	1,280,001	1,266,370

If the figures are closely examined, it will be noticed that there has been no very marked increase or decrease at any of the sixteen districts named. The Clyde has gone up a few thousand tons, the Tees down a few thousand, the Tyne up several thousand, the Forth down, and so on through the list, seven districts showing an increase and nine districts decreased production.

That the enormous output of more than 1,280,000 tons was not demanded by the conditions of trade appears quite evident from the fact that the number of tons removed from the register for the year ended June 30, 1891, represented but 311,320 tons, the year following 408,750 tons, and the average for ten years past but 334,903 tons, while the average production for the like period has been almost up to the production of the year just closed.

The statistics of the world's tonnage furnish a still more convincing proof of overproduction. In 1887 the tonnage of the world's seagoing vessels was 20,738,645 tons; in 1888, 21,048,704 tons; in 1889, 22,151,651 tons; in 1890, 22,930,958 tons; and in 1891, 23,694,508 tons. That 1892 would show a like increase if the figures had been compiled and the facts thus known is evidenced by the year's work. It is believed that these figures, large as they are, do not represent the real increase in full; for, assuming that a steamer is equal to three sailing vessels for cargo-carrying, the increase, taking into account the unusual—not to say phenomenal—increase in steam vessels during the past few years would amount to well-nigh 10,000,000 tons. Such an increase is evidently far beyond the needs of trade and precludes the possibility of an increase in freights for some time to come, and it would seem to surely foreshadow serious depression in the shipbuilding trade in the near future. A few figures (actual prices) now being paid vessels for carrying some of the leading products of the world adds further proof, if that were necessary. Wheat is being carried in steamers from New York to Liverpool for 3 cents per bushel; cotton, three-sixteenths of a cent per pound; and coarse goods are being transported from the different ports of Great Britain to New York for $2 to $2.50 per ton, while finer goods are carried for $3 to $3.50 per ton.

Mr. Robert Knight, general secretary of the Iron Shipbuilders' Society, closes his report as follows:

> The fact is, there is fully one-third too many men in the trade of shipbuilding; if the numbers were reduced one-third, they could turn out as much work (tonnage) as the trade requires. The great evil to every one concerned—shipowners, shipbuilders, and workmen—is that as soon as shipping commences to make anything like fair returns to investors, and they can afford to pay a fair price to the shipbuilder, and he in turn a reasonable day's wages to the workmen, instead of allowing this state of things to continue or ordering a sufficient number of vessels to make good the losses and meet the expansion of trade, a superabundance of orders is given out all at once, and the shipbuilder rushes all the men he can get on the work, finds fault because he can not get more, and increases the number of apprentices. Thus there is as much shipping put into the water in twelve months as should have taken three years to build and three times the tonnage that the trade requires. The result is that freights drop down below the paying point, and then commences a cutthroat competition among shipowners and managers for freights. Few ships are built, and there is the same competition among the shipbuilders for these. The workmen are discharged by the thousands, and, with very few exceptions, these can not save sufficient money during the time they are working to keep themselves and families during the many months they are out of employment. Here we have Pharaoh's dream over again—the lean years eat up the fat years, and nobody is any the better. Carlyle once said that freedom was a divine thing sometimes, but when it was freedom to die of starvation is was not so divine. And yet that is what freedom of contract and freedom of competition has led to, and must inevitably lead to, when unrestrained.

Mr. Knight's views are perhape extreme, but there is much truth in what he says.

CLYDE SHIPBUILDING.

The Clyde, as usual, leads all other shipbuilding districts of the Kingdom; and, as this district is a good representative as to size, kind, and quality of vessels and the engines used in them, at least of all the larger shipbuilding centers, I give the work done here somewhat more in detail.

In the table following the names of vessels and for whom built are omitted as being immaterial.

Table showing the number, tonnage, and effective horse power of vessels built on the Clyde.

Name of builder.	Steam vessels.	Sailing vessels.	Gross tonnage.	Effective horse power.
Russell & Co.		26	54,240	
Caird & Co.	6		28,990	31,000
Connell & Co.		12	23,753	
Scott & Co.	5	5	21,213	34,300
J. & G. Thomson	5		18,530	22,600
Fairfield Shipbuilding Company	3	1	17,505	31,551
William Denny & Bros	10		17,141	
A. McMillan & Son	2	9	16,518	
A. Stephen & Son	4	1	13,532	7,340
Barclay, Curle & Co.	1	5	12,431	800
W. Hamilton & Co.	10	5	11,883	
R. Duncan & Co.		5	11,740	
A. Rodgers & Co.		7	11,717	
R. Napier & Sons	2	4	10,400	15,500
D. & W. Henderson	2	11	8,718	11,200
Mackie & Thomson	4	2	7,003	
Ailsa Shipbuilding Company	7	1	6,508	
W. Simons & Co.	11	1	5,881	7,170
Fleming & Ferguson	8		5,300	8,000
Reid & Co.	2	4	3,706	
Napier, Shanks & Co.	5	4	3,515	
Lobnitz & Co.	10	8	3,245	7,285
J. J. Dunlop & Co.	3	3	2,875	3,150
Murdoch & Murray	5		2,223	
Scott & Co.	7		2,423	
Fullerton & Co.	8		2,163	
London and Glasgow Company	2		2,125	1,650
Androssen Shipbuilding Company	4		2,095	
J. McArthur & Co.	7		1,541	
S. McKnight & Co.	4	1	1,367	
J. Shearer & Son	3	2	1,330	
Campbellton Shipbuilding Company	1		1,229	
A. & J. Inglis	3		868	1,470
J. H. Gilmore	5		728	155
T. B. Seath & Co.	5	2	720	
Abercorn Company		9	600	
Burrell & Sons	5		600	
Mechan & Sons	1		525	344
Ritchie, Graham & Co.	1		309	
Blackwood & Gordon	2		276	600
J. & J. Hay	2		142	
Fife & Son		11	221	
Total	165	139	338,167	199,153

In the foregoing detailed report I include vessels built at Androssen and one or two other minor places, the same being in the Clyde district, but not on the Clyde, and this accounts for the slight discrepancy from the totals heretofore given. A few builders do not do their own engineering work.

The most notable ships built on the Clyde during the year have been the battleship *Ramillies*, 14,300 tons, by J. & G. Thomson; the cruiser *Gibraltar*, 7,700 tons, by R. Napier & Sons; and the magnificent new passenger steamer *Campania*, 12,500 tons, by the Fairfield Shipbuilding Company. The latter is the largest screw steamship ever built for passenger service, and doubtless marks a new departure in that line of shipbuilding. It is believed that she will lower the record between Liverpool and New York many hours. She is a twin-screw steamer, built upon very fine lines, and is supposed to have engines of at least 25,000-horse power. Her cost will be about £500,000. It is said that the *Ramillies* will cost, when fully completed, £1,000,000.

The following gives the tonnage and horse power of vessels built on the Clyde for the past twelve years:

Year.	Tons.	Horse power.
1881	340,823	293,017
1882	395,149	262,364
1883	417,881	315,020
1884	298,964	263,364
1885	193,589	106,892
1886	173,736	172,313
1887	185,995	200,723
1888	27),211	258,247
1889	336,005	308,008
1890	367,063	355,529
1891	327,781	320,639
1892	338,167	292,565

As to the condition of the trade on the Clyde during the past year, it may be said that, with freight tending downward, customers were exacting and competition keen; so that perhaps at no time in the history of the trade have vessels been built so cheaply as during the year just closed. Naturally, the wage-earner has come in for his full share of the loss, his wages in many cases being cut down. In some instances he has grumblingly acquiesced; in others strikes have followed, but, we believe, with the uniform result that in the end the striking workmen lost. There are a number of labor disputes now on, with more likely to follow.

The magnitude of the trade, both to the builders and the workmen, can be best comprehended by noting that the value of the output of ships for the year was £9,100,000, or, in round numbers, $45,000,000. In 1891 the estimated value was £8,900,000; in 1890, £9,500,000; in 1889, £7,500,000; in 1888, £5,600,000; in 1887, £4,400,000; in 1886, £4,100,000; in 1885, £4,000,000; in 1884, £7,000,000; and in 1883, at which time the trade was at its flood tide of prosperity, both as to quantity of work produced and price paid, it was £10,000,000—in round numbers $50,000,000.

Comprehending these figures fully, we can understand what depression in the trade means, especially if it be prolonged and severe.

The workmen employed on the Clyde, directly and indirectly connected with shipbuilding and marine engineering for 1892, numbered 38,000 men; in 1891, 43,000; in 1890, 46,000; in 1889, 38,000; in 1888, 31,000; in 1887, 26,000; in 1886, 23,000; in 1885, 25,000; in 1884, 32,000; and in 1883, 52,000.

LEVI W. BROWN,
Consul.

UNITED STATES CONSULATE,
Glasgow, December 30, 1892.

INDUSTRIES OF GLASGOW.

*REPORT BY CONSUL BROWN.**

HANDLING AMERICAN CATTLE.

It may be mentioned that the necessities of the trade in cattle from the United States have induced the Glasgow authorities to provide additional accommodation.

At present there is only lairage for fifteen hundred cattle, but the trade has so increased within the last few years that it was found necessary to give increased accommodation. Additional lairs are now being constructed, so that the whole premises will accommodate four thousand cattle. The additional lairs are being constructed on an improved plan. The existing sheds are only one story in height. The new building, however, which is strongly erected of brick, will have three tiers of floors, to which access will be gained by means of inclined gangways.

Railway connections are being formed so as to facilitate the quick distribution of the carcasses.

TRADE DISPUTES.

Trade disputes the past year have been rather numerous, but none of them of very great importance. Reductions in wages in some cases have taken place, but appear to have been acquiesced in by the wage workers as being necessary to meet the alleged depression in business.

SHIPBUILDING.

The leading, the great industry of the district—shipbuilding—has kept up, in spite of low freights, in a phenomenal manner, and, while many forebodings for the future are indulged in, the fact remains that up to the present time this year's production is greater, with but a single exception, than was ever known in the history of Clyde shipbuilding.

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* Extracts from the consul's annual report. The annual report will appear in Commercial Relations.

Here are the figures from 1878 to the present time:

Year.	Month of August.		Eight months.	
	No.	Tons.	No.	Tons.
1892	19	20,484	206	235,703
1891	19	15,611	201	202,951
1890	24	34,059	176	224,503
1889	24	38,091	138	194,819
1888	19	28,109	138	146,461
1887	19	35,575	114	131,641
1886	6	10,171	108	110,469
1885	16	17,243	152	125,878
1884	21	25,123	167	189,865
1883	25	54,003	191	259,820
1882	26	36,800	169	232,578
1881	21	32,500	153	214,760
1880	17	16,000	158	146,100
1879	10	9,300	120	112,200
1878	21	20,800	166	156,500

This shows a total for the eight months of 235,703 tons, as against 202,951 tons for the same period last year, a remarkable showing, surely.

It will be noticed that during the month of August there were launched from Clyde yards 20,484 tons this year, as against 15,611 tons last year; but, as seeming to indicate some foundation for the forebodings of coming depression, the fresh contracts placed during the month were only 8,000 tons, as against 29,000 tons last year.

Two notable ships for the Atlantic passenger service are being built at one of the leading shipyards, which will form the subject of a future communication.

LEVI W. BROWN,
Consul.

UNITED STATES CONSULATE,
Glasgow, October 25, 1892.

PLYMOUTH, DARTMOUTH, AND JERSEY.

REPORT BY CONSUL FOX, OF PLYMOUTH.

I beg to submit my report on the trade and commerce of this port and district.

The harvest returns, unlike many other localities, are fairly satisfactory. All kinds of grain yielded an average as regards quantity and quality, but the prices realized for farm produce are the lowest on record. As an instance of this I may mention that wheat is now selling at 28*s*. per imperial quarter. Barley is somewhat better; but, taken generally, farmers are having a bad time of it, prices obtainable for beef, mutton, milk, and other commodities affording them no satisfaction. Root crops are good and bid fair to turn out abnormally prolific, which will tend to a great extent to remedy the prevailing scarcity of hay, the crops of which, though small (with the exception of Dartmoor, where the return has been particularly good), have been fine in quality. Apples are again scarce, and very little cider will be made in this district.

Trade in the port of Plymouth shows a slight decrease compared with the same period of 1891; this result is principally due to slackness in the grain trade, attributable mostly to the Russian famine scare. Exports to the United States, however, are most satisfactory, my returns showing a considerable increase all round. Plymouth also bids fair at an early date to obtain universal recognition as a port of call and for embarking and disembarking mails and passengers, the latest being the decision of the Cape authorities and the Union Steamship Company to avail themselves of this port primarily on the homeward journey.

Mr. George Hingston, consular agent at Dartmouth, reports:

> Messrs. Simpson, Strickland & Co., continue doing a large business in engineering and building and fitting out steam launches and other vessels. The other shipbuilders have been doing a fair amount of business, principally fitting out and repairing yachts.
>
> The Demerara and West India boats continue calling every two or three weeks, and the mail steamers for the Falkland Islands and South America every eight weeks. A great number of steamers have called here for bunker coal.
>
> The imports have been almost *nil.*
>
> The harvest has been fairly good, but has suffered in some degree from want of rain.

Mr. Philip Ahier, consular agent at Jersey, writes:

> I have no report to give about the United States navigation; we have no vessels here, nor have we had any. The only thing I have to report is, that our freight for early potatoes has been during the year £376,535 15*s.* 10*d.*—a smaller amount than last year. I inclose a special statement of the potato traffic.

Table showing shipments of potatoes from Jersey from 1883 to 1892.

Year.	Quantity.	Value.		
	Tons.	£	*s.*	*d.*
1883	36,468	262,472	3	4
1884	53,655	375,841	18	0
1885	48,524	319,464	3	4
1886	64,800	309,155	6	11
1887	50,073	423,888	18	10
1888	60,988	242,109	11	8
1889	52,700	264,153	15	0
1890	54,109	293,681	9	2
1891	66,810	487,642	1	8
1892	66,332	376,535	15	10
Total	....	111,106	5	10

THOMAS W. FOX,
Consul.

UNITED STATES CONSULATE,
Plymouth, October 6, 1892.

BUDGET OF DUTCH INDIA.

REPORT BY MINISTER THAYER, OF THE HAGUE.

I have the honor to transmit herewith the leading items of the East India budget, as laid before the Second Chamber of the States General on the 27th ultimo.

The estimated total of expenditures for the year 1893 is as follows:

In the Netherlands	$10,260,081.98
In the Indies	45,715,888.63
Total	55,975,960.61

The estimated total of receipts for the year 1893 is as follows:

In the Netherlands	$11,592,826.95
In the Indies	40,761,602.04
Total	52,354,428.99

This shows a deficit of $3,621,531.62.

The year 1890 shows a balance of $3,520,900.92, the receipts exceeding the estimates of that year by said amount. Present indications place the estimated deficit of 1891 at $6,231,000 and of 1892 at $6,130,500.

The receipts and expenditures for 1893 exceed those of 1892 by $4,275,344.37 and $458,985, respectively, the increase in expenditures of 1893 being due to the enlarged demands on the treasury on account of coffee culture, salaries, pensions, railways, tin-mining enterprises in Banka, purchase of coal fields, education, etc.

The following are the most important items of expenditure:

Description.	Amount.	Description.	Amount.
Railway and harbor works at Batavia	$2,470,290	Ombilien coal fields	$349,338
New irrigation works	1,206,000	Water ways	580,890
Coffee culture (for new plants)	603,000	Construction of railways	2,289,390
Educational purposes	1,390,340	Management of railways	1,728,198

The minister further states that the estimated coffee crop for 1893 is 100,000 piculs less than the actual crop of this year, and, further, that efforts are now on foot having for their object a reduction of colonial expenses; also, that the Government is about to undertake the experiment of cultivating opium on its own account.

The minister, moreover, proposes the following measures for increasing the revenue:

(1) An excise duty on matches of 0.40 florins per gross.

(2) An increase in the excise duty on petroleum from 1.75 florins to 2 florins per hectoliter.

(3) A tax on the sugar industry to the amount of 575,000 florins, or $231,150, the suspension of export dues on said article continuing to January 1, 1894.

(4) That the receipt stamp be increased from 0.05 florin to 0.10 florin, and that the stamp on checks, acceptances, and assignments be raised in similar ratio.

The minister further calls attention to the fact that the measure alluded to in the speech from the Throne, having in view a tax on business and professional callings, will extend in its operations to the Netherlands Indies.

And, finally, his excellency states that the Government price of coffee for the coming year will be 0.45 florin per half kilogram, as against 0.48 florin per half kilogram paid the present year.

SAMUEL R. THAYER,
Minister.

UNITED STATES LEGATION,
The Hague, October 3, 1892.

JAFFA-JERUSALEM RAILROAD.

REPORT BY CONSUL MERRILL, OF JERUSALEM.

I have the honor to report that the formal opening of the Jaffa and Jerusalem Railroad occurred on the 26th of September, on which date the company that had contracted to construct the road gave it over into the hands of the company which owns it. The event was celebrated on the part of the Mohammedans by an address from an imam, one of their priests of high rank in Jerusalem, after which three sheep were slaughtered on the platform of the station as a kind of propitiatory sacrifice; and on the part of the company it was celebrated by a dinner given in the evening under tents at the Jerusalem station. Djelal Pasha, aide-de-camp to the Sultan, was present from Constantinople to represent the Sultan in the opening exercises. M. Collas, the president of the road, and several eminent engineers from Paris were also present, likewise the governor of Jerusalem and Palestine, together with the civil and military authorities and the members of the diplomatic and consular corps. One hundred and fifty guests sat down at the tables and enjoyed a fine dinner, but the speech-making was confined to a few remarks by the governor, with a brief response from the Sultan's representative, and a few words by the French consul-general on behalf of the consular corps. A toast to the Sultan was drank, and the Turkish band played the different national airs as represented by the guests. The greatest popular interest was manifested in this event, and for the first time in its history Jerusalem showed a little of the life and bustle which characterize cities in the western world.

The road just completed, the first ever built in Palestine and Syria, is a little over 53 miles long, 30 miles of which are on the plain land and the remaining 23 in the mountains. There are no tunnels on the road, the builders preferring to go around bluffs that might be tunneled rather than to bore through them. There are at least five deep cuttings among the hills and three or four fine iron bridges. The steepest grade is 2 per cent, or about 100 feet to the mile. The track is narrow gauge, exactly 1 meter in width. Wooden ties are used, which were brought from France and cost, delivered in Jaffa, 80 cents each, and half of the rails came from France and the other half from Belgium. The road has five engines, all made by the Baldwin Locomotive Works, in Philadelphia, and the cars, which were made in the north of France, open at the ends, with a passage running lengthwise through them, and there are compartments divided by partitions and doors Coal is brought from Cardiff and from Belgium, and 200 tons are required a day.

Between Jaffa and Jerusalem, not including these, there are five stations. For the station in Jerusalem, which is 1 mile from the city, a little more than 8½ acres of land were purchased at a very high price—not less than $25,000—land which thirty years ago was sold for $1 per acre. This station is 2,476 feet above the level of the station at Jaffa, and the exact length of the road is 86½ kilometers, or 53.6 miles. The cost of the road is not far from $2,000,000.

The company was organized in 1890, and the concession was obtained in that year, three years being allowed for the construction of the road; but the builders completed it in two and one-half years. French money built the road, and the principal owners reside in Paris, where also is the headquarters of the company.

Besides the peasants of the country, the builders employed in the construction of the road 300 Italians and a large number of Algerines and Egyptians. The men who did most of the stonework—blasting through hills, laying walls to support embankments, and cutting stone for stations and bridges—were from Bethlehem and the nearest neighboring village to it, called Beit Jala, men whose ancestors have been stonecutters from ancient times. The Arabs on the plain received 30 to 35 cents per day, the Egyptians and others 40 to 50 cents per day, while the men who could work in stone received from 70 cents to $1 per day. The company erected barracks along the line of the road, where laborers could sleep free of charge, but they provided their own food. Twice a week physicians passed along the line of the road wherever there were workmen to render any medical assistance that might be required.

The time between Jerusalem and Jaffa is three and one-fourth hours down and three and one-half hours coming up, and the fare is $2.50 first class and $1 for the second class.

The engineer who has had charge of surveying and constructing the road until it was formally handed over to the owners is Mr. Gerold Eberhard, a Swiss gentleman who has had eight years' practical experience with the railroad in Panama.

The road appears to be fairly well built, the ties being bedded for their entire length in a layer of small stones 10 inches in depth. Pains have been taken, also, at many points to shore up embankments of earth with masonry. However, with all the precautions taken, the liability to serious washouts will be very great, because the violence of the torrents during some of the severe winter rains is something that can be appreciated only by those who reside in this country.

No one can dispute the great convenience of this new means of communication with Jaffa, the seaport of Palestine, and in this respect the road will be highly appreciated by the natives, as well as by the multitude of travelers and pilgrims who visit this country every year. As to the financial success of this new enterprise, one can at present only speculate, for it is impossible to forecast results. The expenses of running the road will be considerable—in fact large—in proportion to its income, and no reasonable person supposes that its existence will, except to a very limited degree, create sources from which a revenue might be derived.

Whatever may be its future, the opening of such a road in this country is an event of more than ordinary interest when one considers the history of this land and its backwardness in all that pertains to modern and material civilization.

SELAH MERRILL,
Consul.

UNITED STATES CONSULATE,
Jerusalem, October 5, 1892.

ENGINEERING WORKS IN NATAL.

REPORT BY CONSULAR AGENT HOLLIS, OF DURBAN.

A little more than fifty years ago the only iron-workers in this colony were the natives, who broke and chipped the ore from the outcroppings on the iron-ribbed hills, smelted it in their rude furnaces, and finally forged the iron thus obtained into spearheads, often using nothing but a smooth-faced stone for a hammer and the skull of a defunct ox for an anvil.

To-day Durban is better equipped with private—as distinguished from Government—engineering plants than any other city on the South African seaboard. The manufacturing and repairing of sugar machinery of the heaviest class has necessitated the installation of heavy machinery and tools in the local machine works and foundries. Iron castings up to 10 tons in weight have been successfully turned out here, but no attempt has been made as yet with steel castings. Steel forgings of from 3 to 5 tons weight can be made here in several establishments. The best-equipped foundry and machine shop is fitted up with many modern heavy machine tools, among which are included a 5-ton, double-acting steam hammer; a "gap lathe," capable of taking in work of 15 feet in diameter and 25 feet in length (diameter of mandril, 18 inches); and a complete set of hydraulic forging, punching, shearing, and riveting machines, the largest riveter being capable of exerting a pressure of 60 tons.

Prime motors, such as engines and boilers, turbines, and other hydraulic motors, of over 2,000-horse power in the aggregate have been built in the works mentioned. Some marine work has also been done that speaks well for the capabilities of these works, viz, an iron mainmast for a bark of about 700 tons, and a new steel sternpost and rudder for a steamer of 1,100 tons.

Had this port better docking facilities, almost any description of marine work could be done, but at present vessels of over 1,000 tons can not be placed on the marine railway "slip," while a dry dock is one of the probabilities of the future.

W. STANLEY HOLLIS,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Durban, September 7, 1892.

CAMPHOR IN NAGASAKI.

REPORT BY CONSUL ABERCROMBIE.

In consequence of frequent inquiries received at this consulate from private sources in regard to camphor, I have deemed it important to obtain all available information in regard to its growth, manufacture,* and shipment and have the honor to submit the following report:

The manufacture of camphor is an important industry on the island of Kioo-Sioo. From the port of Nagasaki there were exported to the United States in the years 1872 to 1890 1,230 tubs and 34 logs, valued at $16,331.93.

Foreign firms at Nagasaki put it through a process by subliming it from quicklime in iron vessels, in which it condenses in the translucent cakes. The native producer sells his product at an average price of $13 to $14 per picul.

Camphor trees grow abundantly in Satsuma, in the island of Kioo-Sioo. No camphor was exported from Nagasaki to the United States from 1890 to 1891. Camphor oil is mostly exported from Kobé.

Camphor oil can be had in lots of 100 to 500 piculs at a time. It is usually packed in old kerosene-oil tins and cases and shipped abroad in that manner. There are two qualities—the oil as it is expressed from the camphor and the same oil after having been heated and the solid camphor taken from it by evaporation. There is a wide difference in price, the first-named being worth $18 per picul first cost, while the last-named is worth about half that price.

Camphor is almost entirely shipped by direct sailing vessels to New York. Steamers do not usually carry it, as it is likely to affect other cargo, though it is occasionally carried by steamers from Japan to New York via the Suez Canal. Via Vancouver or San Francisco the rate of freight would be prohibitive.

In view of the fact that the destruction of the tree is necessary for obtaining the gum, the increased demand has resulted disastrously for the camphor forests; and, notwithstanding the law compelling the planting of new trees for each one destroyed, the decrease in the number of available trees is becoming more and more marked and must in time result in at least temporary cessation of the exportation from this district of camphor in any large quantities.

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* The process of the manufacture of camphor was given in CONSULAR REPORTS No. 144, page 57.

Table showing the export of camphor from Nagasaki to various countries during the year 1891.

Month.	Quantity.	Value.	Duties.
	Piculs.		
January	20,536	$6,866.55	$1,650.66
February	32,834	10,680.81	1,987.14
March	72,099	23,763.81	2,572.70
April	95,406	32,952.26	4,098.73
May	37,061	12,273.69	4,281.90
June	51,296	19,051.75	1,064.72
July	2,273	695.00	1,609.02
August	36,826	12,518.14	1,451.96
September	4,507	1,392.92	1,086.98
October	13,048	4,032.10	767.87
November	22,347	7,633.11	2,164.75
December	28,852	10,053.91	2,892.74
Total	417,085	141,874.05	25,629.17

Table showing the camphor and camphor oil manufactured in Kagoshima Ken during the year 1891 and exported to Osaka, Kobé, and Nagasaki.

Name of places.	Camphor.	Oil.
	*Catties.**	*Catties.**
Kagoshima	42,553	18,420
Taniyama	3,000	3,000
Kita Osumi	395	200
Kiurei	2,500	1,822
Ibushiki	2,109	1,393
Yehime	1,778	3,299
Kawabe	2,948	4,890
Hioki	6,707	12,570
Ata	2,444	2,520
Takaki	40,900	81,650
Satsuma	19,676	35,000
Minami-isa	38,547	71,320
Demidzu	7,250	10,000
Kita-isa	4,670	929
Hishikuwa	780	492
Gora	7,486	19,040
Kuwahara	8,886	13,090
Nishisowo	1,906	5,594
Higashisowo	964	1,624
Minami Morogata	4,712	6,208
Kimotsuki	18,630	72,720
Minami Osumi	11,072	20,908
Kumage	8,920	17,760
Tomaku	35,334	72,150
Total	274,167	476,473

*1 catty = 1⅓ pounds.

W. H. ABERCROMBIE,
Consul.

UNITED STATES CONSULATE.
Nagasaki, September 8, 1892.

SHIPPING IN BRITISH COLUMBIA.

REPORT BY CONSUL MYERS, OF VICTORIA.

In the reports on trade and navigation issued by the Dominion of Canada for the fiscal year ended June 30, 1891, appears the following table showing the number of foreign vessels, their tonnage, and the number of their crews arriving and departing at the four principal ports of British Columbia, viz:

Table showing the arrivals and departures at the four principal ports of British Columbia during the year ended June 30, 1891.

Flag.	Arrived.			Departed.		
	No.	Tons.	Crews.	No.	Tons.	Crews.
Victoria.						
British	92	25,292	1,358	121	28,960	2,009
American	920	789,475	46,133	894	783,959	45,532
German	2	100	18	1	50	9
Danish	1	580	14	1	580	12
Chilean	1	995	15			
Nicaraguan				1	1,274	30
Total	1,016	816,442	47,538	1,018	814,823	47,592
Vancouver.						
British	62	73,711	2,878	63	67,849	2,556
American	232	194,085	10,050	233	197,603	9,933
Norwegian	3	2,398	42	1	1,035	18
German	6	7,680	112	4	6,162	76
Spanish	1	972	13	1	972	13
Chilean	8	8,615	124	8	8,030	125
Total	312	287,461	13,219	310	281,651	12,721
Nanaimo.						
British	49	50,385	1,066	58	64,847	1,435
American	402	272,894	7,778	444	334,130	10,372
German	3	5,109	77	4	6,812	89
Hawaiian	14	32,088	432	14	32,088	433
Nicaraguan	30	29,304	639	33	32,274	712
Total	498	389,780	9,992	553	470,151	13,041
New Westminster.						
British	10	5,890	174	8	4,760	115
American	33	11,325	579	33	12,070	474
Chilean	2	1,657	23			
Total	45	18,872	776	41	16,830	589
Recapitulation.						
British	213	155,278	5,476	250	166,416	6,474
American	1,587	1,267,779	64,540	1,604	1,327,762	66,311
Norwegian	3	2,398	42	1	1,035	18
German	11	12,889	207	9	13,024	174
Danish	1	580	14	1	580	12
Spanish	1	972	13	1	972	13
Chilean	11	11,267	162	8	8,030	125
Hawaiian	14	32,088	432	14	32,088	433
Nicaraguan	30	29,304	639	34	33,548	742
Total	1,871	1,512,555	71,525	1,922	1,583,455	73,943

A glance at the above table will show the great preponderance of American shipping arriving and departing over that of all other nations combined. Fully five-sixths of the foreign vessels loading and unloading at British Columbia ports fly the American flag, which fact demonstrates that the foreign carrying trade of the province is almost wholly transacted in American bottoms. The British shipping consists of sailing vessels and tramp steamers from Great Britain and the regular lines of steamships from the Orient. The German, Chilean, Norwegian, and Spanish shipping are nearly all sailing vessels employed in carrying lumber to Australia and the west coast of South America. The Hawaiian and Nicaraguan shipping are steam colliers in the coal trade between Nanaimo and San Francisco.

In the above table the number of sailing vessels and steamers is not designated; but, as to the American shipping, the number of steamers arriving and departing greatly exceeds the number of sailing vessels. At Victoria almost all the vessels are steamers. At Nanaimo the American sailing vessels, mostly colliers, are in the majority. This is also true of New Westminster, where lumber and salmon constitute the cargoes. At Vancouver the steamers outnumber the sailing vessels, although quite a number of the latter load lumber at the Burrard Inlet mills for southern ports.

STEAMSHIP LINES.

Three lines of British steamships ply between the province and the Asiatic ports of Hongkong and Yokohama, to wit: The Royal Mail line, the Upton line, and the Northern Pacific Steamship Company's line.

The Royal Mail line is operated in conjunction with the Canadian Pacific Railway, and consists of three new, fine steamships—the *Empress of India*, the *Empress of Japan*, and the *Empress of China*. One of these vessels arrives at Victoria and Vancouver every twenty-one days.

A steamer of the Upton line arrives at the same ports once a month, and the return cargo generally consists of flour, loaded at Portland or the sound ports.

The Northern Pacific Steamship Company is operated in connection with the Northern Pacific Railway, and the line comprises four large and well-fitted steamers. These vessels run from Puget Sound ports to the Orient, and also touch at Victoria in going and coming. This line has but recently been established.

Four American lines of steamers do business in the province. They are the Pacific Coast Steamship Company, of San Francisco; the Puget Sound and Alaska Steamship Company; the Union Pacific line; and the Merchants' Steamship Company, of Portland, Oregon.

The Pacific Coast Steamship Company operates three large and commodious steamers between San Francisco, British Columbia, and Puget Sound ports, leaving San Francisco every five days and making the round trip in twelve days. This line does a large business with British Columbia, and during the fiscal year 1891 transported to the province some 40,000 tons of California products and miscellaneous freight. This company also operates a branch line of steamers from Seattle to Alaska ports, and these vessels also touch at British Columbia ports. An attempt was made during the year to establish a British line of steamers from San Francisco to this province in opposition to this line, but it failed.

The Puget Sound and Alaska Company runs an elegant daily steamer from Tacoma, where it connects with Northern Pacific trains, to Victoria. This line maintains a heavy business with Victoria, and during the fiscal year landed over 15,000 tons of overland and local freight at this port. Its passenger business is large and is steadily on the increase.

The Union Pacific Railway also ran a daily steamer from Tacoma to Victoria during the fiscal year 1891, but the line has since been discontinued and the business transferred to the Puget Sound and Alaska steamers.

The Merchants' Steamship Company, of Portland, operates two steamers between that port and British Columbia and Puget Sound ports, making the round trip every seven days. The company does a good freight and passenger business.

SHIPBUILDING.

The following table shows the amount of shipping built and registered in the province for the fiscal year ended June 30, 1891:

Port.	Built.				Registered.			
	Steam.		Sail.		Steam.		Sail.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
New Westminster	9	705	1	16	2	55	....	....
Vancouver	4	152	4	198	9	373	4	198
Victoria	7	376	4	181	4	627	9	599
Total	20	1,233	9	395	15	1,055	13	797

From the above table it would appear that during the year only small steamers, schooners, and sloops were built; but the shipbuilding industry is looking up in the province, and the reports for the fiscal year just closed will show a decided increase in that line of business, a number of large steamers and sailing vessels having been constructed during that period.

LEVI W. MYERS,
Consul.

UNITED STATES CONSULATE,
Victoria, September 10, 1892.

Foreign munitions of war in China.—Minister Denby, of Peking, under date of August 10, 1892, transmits to the Department a translation of a communication from the foreign office relating to the illicit introduction of munitions of war into China, from which it is seen that hereafter munitions of war can not be imported into China except on the certificate of a commissioner of customs, who shall issue a permit in English to that effect. Arms and munitions otherwise imported will be confiscated.

SANITARY CONDITION OF CADIZ.

TRANSMITTED BY CONSUL TURNER.

[Translation.]

MEMORIAL OF PROPOSED SEWERAGE.

A brief consideration of the evidence is sufficient to demonstrate that the erection of new sewers in our beautiful city presents itself, not as a work whose construction is claimed by modern life and the progress of the age, but as an undertaking absolutely indispensable for the preservation of health that is threatened by the decaying organic matter that fills our sewers and poisons the atmosphere. Such is the conviction of all our citizens, who are constantly feeling the effects of breathing an atmosphere pregnant with deadly gases.

That this position is well taken is proven by the following statistics:

Population of Cadiz in 1877	65,028
Population of Cadiz in 1887	62,594
Decrease	2,434

Table showing vital statistics of the population for eleven years.

Year.	Births.	Deaths.	Excess of deaths over births.
1878	1,888	2,730	842
1879	1,821	2,459	638
1880	1,930	2,607	677
1881	1,858	2,519	661
1882	1,818	2,621	803
1883	1,890	2,816	926
1884	1,936	2,321	385
1885	1,800	3,082	1,282
1886	1,904	2,717	813
1887	1,865	2,564	699
1888	1,776	2,829	1,053
Total	20,486	29,265	8,779

It is indisputable that Cadiz possesses the best natural hygienic conditions, in consequence of its excellent situation, continual winds, presence of the sea, and general topography. It unfortunately, however, has the greatest mortality of any city in the list. The proportion is 44.6 deaths per thousand a year, while in all the other first-class cities of Europe the rate is from 16 to 28.

In the first place, instead of caring for the air as an element most precious and necessary for life, we contribute by our unpardonable negligence to make it the agent of other gases that are the conductors of death-originating molecules and microbes.

It is necessary to prevent by all means materials from remaining long in sewers, otherwise fermentation sets in and fills the atmosphere we breathe with thousands of impure germs that are the first causes of numberless very contagious and dangerous diseases.

It is necessary to immediately drive out the poisonous effluvia which has always existed in the present sewers, which were constructed without regard to health-preserving principles—fixed rules, levels, etc. Their construction is such that they very soon become blocked up at different points by accumulated filth. This offal is decomposed by fermentation and precipitates poisonous gases through all the passages of the sewers.

It is necessary to connect the houses with the principal sewers, as recommended by science, so that the refuse can descend at once to the large main. The passages that now connect the houses with the general system serve only as tubes through which foul air ascends from the sewers. This air produces nauseating odors in the houses and places the health of the inhabitants in imminent danger.

Reforms of this class, which are of vital importance, can only be effected by the people acting in harmony with the authorities. In this instance the authorities will spare no effort to secure the plan indicated. Their sacrifices will be vain, however, if the system to be adopted is not extended by the people to the houses and governed by the same scientific laws as to cleanliness, ventilation, construction, etc. True, much can be accomplished on this point by reforming the municipal ordinances, introducing sections that will compel proprietors to make and keep these connections in good condition, as demanded by sound hygienic principles. While much can be done in this way, we repeat that all the coercive measures permitted by law are insufficient if the people do not of their own conviction assist in making these reforms effective. This improvement is so peculiarly dependent upon the action of families that it is impossible for the most careful and zealous investigation of the authorities to perfect it without their coöperation. It is hoped this assistance will be given by the people of our cultured city.

But, putting aside considerations of a general character and limiting this memorial to the discussion of public works, we must see what systems of sewerage are used in cities where the greatest care is taken of health. We must also discover which of these can be most economically applied to our city, taking into consideration its surface, elevation, and other topographical features.

CENSUS OF THE STRAITS SETTLEMENTS.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

I am just in receipt of the report of the superintendent of the census of the Straits Settlements for the year 1891. The report is large, bulky, very complete, and reflects great credit on the census bureau. I have taken the liberty of making a synopsis of it, and hope that I have left out nothing of great interest.

Before taking up the matter, I wish to call attention to the fact that the calculated percentage of increase of the American residents is put at 85.7 per cent, which would lead one to imagine that there was quite an American colony here. On the consular register there are thirteen names—eleven men and two women. To the best of my knowledge, there are not over four unregistered Americans in the colony, making a total of seventeen. If this number is an increase of 85 per cent over the previous year, it sounds well, but does not look so well when reduced to actual population. Of these seventeen the bulk are teachers in an Anglo-Chinese school, and out of the seventeen one only is engaged in business, viz, the United States consular agent at Penang. The English, German, Dutch, and Italians come here and engage successfully in trade, but never Americans; and yet American interests here are greater than those of all these other nations put together, with the one possible exception of the Dutch. I hope that the census of 1901 will show a large and growing American commercial colony in the Straits Settlements.

The cost of taking the census was $17,387.77, and of compiling the returns $10,637.07; total, $28,024.84, or $54 per 1,000 of population.

Table showing the total population.

States.	Males.	Females.	Total.
Straits Settlements:			
Singapore	141,330	43,224	184,554
Penang, Province Wellesley, and Dinding	152,884	82,734	253,618
Malacca	50,337	41,833	92,170
Total Straits Settlements	344,551	167,791	512,342
Keeling (Cocos) and Christmas islands	289	274	563
Native states:			
Perak	156,408	57,846	214,254
Salangore	67,051	14,541	81,592
Sungie-Ujong	17,234	6,368	23,602
Negri Sembilan	23,327	18,290	41,617
Pahang			64,000
Total native states			425,065
English Malaya			937,970
Sultanate of Johore			200,000
Grand total			1,137,970

The total increase since 1881 is 88,958, or 21 per cent. Among the European and American residents the increase is 95.8 per cent; the Eurasians, 2.2 per cent; the Chinese, 30.7 per cent; the Malays, 9.5 per cent; Tamils, 30 per cent; other nationalities, 26.3 per cent.

Taking the area of the colony at 1,464 square miles, the density of the population (land) is 343.5 per square mile, Singapore being the most densely populated, with 782 to the square mile, and Malacca the most thinly, with 144.

SINGAPORE.

The population in 1881 and 1891 appears thus:

Sex.	1881.	1891.
Males	105,423	141,330
Females	33,785	43,224
Total	139,208	184,554

The total increase is therefore 32.5 per cent. It is distributed among the various races and nationalities (resident) thus: Dutch, 207.6 per cent; Russians, 118.1 per cent; Americans, 85.7 per cent; British, 79.8 per cent; Germans, 77.6 per cent; Chinese, 40.5 per cent; Tamils, 31.9 per cent; French, 29.6 per cent; Eurasians, 15.9 per cent; Malays, 8.4 per cent; other nationalities, 32.6 per cent.

The increase in numbers is as follows; Chinese, 35,142; Tamils, 3,897; Malays, 2,890; Europeans and Americans, 2,485; Eurasians, 495.

PENANG, PROVINCE WELLESLEY, AND DINDING.

The population at the last two censuses appears to be:

State.	1881.			1891.		
	Males.	Females.	Total.	Males.	Females.	Total.
Penang	61,924	29,027	90,951	85,149	38,737	123,886
Province Wellesley	60,732	36,562	97,294	65,296	42,821	108,117
Dinding	1,549	803	2,352	2,439	1,176	3,615
Total	124,205	66,392	190,597	152,884	82,734	235,618

The total increase is thus 45,021, or 23.6 per cent. Here the most noticeable is among the British—329, or 120.9 per cent—while the Chinese again lead the list in numbers with 20,100, the Malays running them close with 14,779.

MALACCA.

The total population of the settlement in 1881 and at the last census was as follows:

Sex.	1881.	1891.
Males	52,059	50,337
Females	41,520	41,833
Total	93,579	92,170

There is thus a total decrease of 1,409, or 1.5 per cent. In the males it is 1,722, or 33 per cent, while in the females there is an increase of 313, or 0.7 per cent. The Chinese are the largest element in this decrease—1,580, or 8 per cent; on the other hand, the Malays and other natives of the archipelago show an increase of 935, or 1.3 per cent, the Malays alone of 1,939, or 2.8 per cent.

THE KEELING (COCOS) ISLANDS.

This far-off little dependency has increased only 3.3 per cent, or 18 souls, since 1881.

PERAK.

The last census was taken in 1879. A comparison of the two sets of figures is:

Sex.	1879.	1891.	Increase.
			Per cent.
Males	50,658	156,048	208.7
Females	30,426	58,204	90.1
Total	81,084	214,252	164.2

The total increase in twelve years is thus 133,178. It will be noticed that the population of Perak is as nearly as possible equal to that of all the other states put together.

While the Chinese have increased by 73,972, the Malays have only added 44,310. It is worth while noting, however, from the following table, that the indigenous race still holds its own as the most numerous:

Races.	Number.	Per cent.
Malays	96,719	45.1
Chinese	94,345	44
Tamils	13,060	6.1
Aborigines	5,779	2.6

The agricultural class forms about one-fourth of the whole population, four-fifths of this proportion being Malays. The industrial class is the largest, 78,651, and of these 49,679 (47,444 being Chinese) are returned as miners.

SALANGORE.

The results of the three censuses taken are:

1884	46,568
1887	97,106
1891:	
Males	67,051
Females	14,541

It is pointed out that the 1884 and 1887 figures are not regarded as trustworthy, and it is hardly probable that in the four years between 1887 and 1891 there had been a decrease in the population of over 15,000.

In Salangore there are more than double as many Chinese as Malays—50,844 of the former and 23,750 of the latter.

SUNGIE-UJONG.

The total population of the state is as follows:

Males	17,234
Females	6,368
Total	23,602

In this state the Malays outnumber the Chinese, there being 10,692 of the former and 9,880 of the latter, while there are but 46 Europeans. There are 1,500 classed as aborigines.

NEGRI SEMBILAN.

The population is as follows:

Males	23,327
Females	18,290
Total	41,617

In this state the Malays number 85 per cent of the population, the Chinese 13.2 per cent, and the total number of other nationalities is but 158.

PAHANG.

The total population of the state, according to the return received, is 57,462; but this total does not include the population of the Semantan district and the Sultan's household, which are estimated by the acting resident at 150 and 200 persons, respectively.

The acting resident further states that only those *sakeis*, or aborigines, who live in close communication with the Malays and who are partially civilized have been enumerated, and he estimates that at least 6,000 *sakeis* have escaped enumeration, which would bring the total of the population nearly up to 64,000.

The distribution of races runs thus:

Races.	Number.	Races.	Number.
Malays	50,527	Sakeis (aborigines)	2,032
Other natives of the archipelago	2,005	Europeans	102
Chinese	3,241	Eurasians (half-castes)	41
Tamils, etc. (natives of India)	583	Other nationalities	373

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, June 28, 1892.

PALESTINE IN 1892.

REPORT BY CONSUL MERRILL, OF JERUSALEM.

RAINFALL AND CROPS.

Last year there fell 30 inches of rain, suitably distributed over the rainy season, so that fair crops were harvested. Twenty-five inches of rain are considered necessary for good crops, and if less than 18 inches fall disaster ensues. The country has been free from unusual sickness, so that the year has been one of comparative prosperity, which, in an oriental country, means that it has been visited by no special calamity.

QUARANTINE.

We have had two visitations of the plague of quarantine, and, in fact, the second is still raging with unmitigated violence. Owing to the sudden death from an unknown cause of two persons in Acre, the local doctor lost his head and sent word to Constantinople that cholera had broken out, and the Syrian coast was at once placed in quarantine, Jerusalem establishing an independent quarantine at three points against the entire country north of Acre. This was ordered during the first week in July and was continued for about ten weeks, although investigations showed that there had been nothing like cholera in Acre. The last week in September Turkey quarantined the whole of Europe and Egypt besides. Neither in this country, nor yet in Egypt, has there been a trace of cholera or any suspicion of it, and the absurdity of forcing into quarantine in Syrian ports steamers that two or three days previously had left Egypt with clean bills of health must be apparent to everyone. The loss sustained in this way by the business interests of the country is very great, although it would be impossible to state it in exact figures.

It is a curious fact that in all the history of this country cholera has never come hither from Egypt or the south, but it has always approached from the north or the east. Even if cholera should visit this country, Jerusalem might be exempt, since it is situated on the top of a mountain 2,500 feet above the sea level. The last occurrence of cholera in this city was nearly thirty years ago, in 1865.

Acre is the port whence most of the wheat that is sent out of the country is shipped; but this year the place was shut up by quarantine just at the time when the great camel trains should come in from the region east of the Jordan, and the result was that an unusual quantity was brought to Jerusalem. No one remembers when such a sight was witnessed before in this city as has been witnessed the past season, when these long caravans came in day after day laden with wheat.

RAILROAD AND HARBOR.

The great event of the past year has been the completion and opening to the public of the Jaffa and Jerusalem Railroad. The road is certainly a great public convenience, while the prospect at present is of rather small returns to those who have built it. It may, however, stimulate other parties to provide sooner than would otherwise have been done two improvements which are pressingly needed, one being a breakwater at Jaffa and the other a suitable water supply for Jerusalem.

The railroad company had almost insurmountable obstacles to overcome in getting ashore the heavy materials for their road, owing to the fact that Jaffa has nothing like a quay or harbor, and vessels for safety have to be out a mile or more from the land. A few small boats are protected by a reef of rocks which runs pretty close to the town wall, but the landing of passengers is not merely inconvenient, it is a difficult and dangerous process, and the wonder is most of the time that boatmen, strong and brave as they are, are able to bring their boats safely from ship to shore. Very seldom have accidents occurred, but on the 29th of October just past a boat containing nearly forty persons, including the boatmen, was capsized and twenty lives were lost. Such a calamity ought to stir the Government to build a mole at once; but such a work, if done at all, must be done by foreign capital. To say nothing of the thousands of people who land at Jaffa every year, the needs both of the custom-house and of the road imperatively demand the construction of a breakwater sufficient for the protection of vessels of every class.

CUSTOM-HOUSE AT JAFFA.

The present custom-house at Jaffa was repaired, or rather entirely rebuilt, about five years ago at a cost of $30,000. Like most of the work of that kind in this country, it was an architectural failure; and the sea has already so far undermined it that the whole structure is in danger of falling. The Government would gladly sell it for $10,000, for the cost of repairing it would be very great. This fact has inclined the authorities to consider a proposition made by the railway company to meet halfway, as the distance is at present too great between the custom-house and the station, and share equally the expense of an entirely new structure erected at a point most convenient for the traveling public, as well as for the shippers of merchandise. There is a fair prospect that the negotiations now going on between the two parties in the case will result in some plan for their mutual interest and for the public benefit.

LANDOWNERS AT JAFFA.

This province has been greatly excited during the past year by the action of the Government with regard to the landowners of Jaffa. To explain the case fully would require too much space for the present report; but the matter is fraught with such serious consequences, not only to the people of Jaffa, but to the inhabitants of any and every other city as well, that an outline of it must be given.

The orange groves of Jaffa, extending over several square miles, have a world-wide fame, and the raising of this fruit is one of the most profitable industries of the country. The land covered by them is and has been for centuries freehold property. There is in the country plenty of Crown land, the legal status of which, so to speak, is quite different from that of freehold land.

A year or eighteen months since some officious person made, as he thought, a great discovery, namely, that, as Jaffa centuries ago "was conquered by the sword," its lands belonged to the Sultan, that is, that they are Crown lands, notwithstanding they have been held during all this long period by private owners as freehold property, their names and titles all being recorded legally in the Government registers. This man saw a chance of making money, and told the Jaffaites what he proposed to do. They offered him a large bribe to keep still; but he demanded three times the amount, which they refused to give, and he went to Constantinople and laid the matter before the department of finance, and the suggestion to take these lands from their owners was favorably received. Notice has been served upon all the landowners at Jaffa that they must surrender their deeds and receive in exchange documents showing them to be the tenants of Crown lands. Petition after petition has been sent by these people to Constantinople that their rights be regarded, and strong letters have been written by the different consuls, especially by the German consul, as the Germans are most largely represented among the foreign residents and they are landowners to the extent of many thousands of dollars; but thus far no reply has been received. This silence is interpreted by them as meaning that the authorities at Constantinople intend to carry out this scheme.

Freehold property a man can do what he likes with; he can plant, build upon, sell, or mortgage it. He pays upon it a yearly land tax of 1 per cent.

The tenant of Crown land must pay an annual land tax of 5 per cent, and, under certain conditions, the Government can evict him. He can not build upon the land without a special permit from Constantinople, which can be obtained only at the cost of a great deal of trouble, time, and especially expense. Moreover, all crops raised on such lands are subject to tithes, and the producer is always at the mercy of the man who collects the tithes. The producer can not compel the tithe man to come at any time; he comes at his pleasure. He always disputes with the producer as to the amount or number, as the case may be, the object being to extort money from him. He may neglect to come till the crop is half ruined; the producer can not touch it before this official has seen it.

Jaffa, as to growth, has during the past year been practically at a standstill. The people can not buy and sell their property as heretofore. No one will exchange his deeds for the documents which the Government proposes to give him instead. There has been no planting of new trees and very little building going on; consequently there are in Jaffa one or two thousand people who would ordinarily be employed in planting or building who are now idle. These people must live, and, as they have little or no work, they must steal. As a result, there have been more cases of robbery in Jaffa during the past six months than have occurred there before in as many years.

By the proposed reversal of these lands to the Crown the amount of money sent to Constantinople would be quintupled. Say that £20,000 are sent at present, by the change £100,000 would be sent instead, but only for two or three years. It would be killing the goose to get the golden egg, for in five years not only every orange-grower at Jaffa, but every orange garden would be ruined. Orange trees are of such a nature that they must be cared for constantly or they will perish. One or two years' neglect proves fatal. And where a tenant has no privileges, and when it costs him a large part of what he raises to satisfy the demands of the Government, he is not likely to take any special interest in the care of the land.

JEWISH COLONIES AND IMMIGRATION.

The prohibition against the influx of Jews, which went into effect about the 1st of July, 1891, and which was duly reported to the Department, has not been removed; consequently the number of these people arriving here since that date may amount to a few score, hardly to a few hundred. During this period, especially during the winter of 1891–'92, thousands of pounds were spent by benevolent Christian societies, chiefly in England, for the relief of poor Jews in this country; and, having had no drawback the past summer—say in the way of sickness—and the importation of the wretchedly poor having ceased, the helpless class is far smaller than it was a year ago and their general condition is much better.

The state of the various Jewish colonies in Palestine has not essentially changed since my full report on this subject dated December 3, 1891. Two views are liable to be taken of this matter of Jewish colonization—one highly colored and overdrawn and the other depreciative—and advocates of the one or the other may think that they are perfectly sincere. Under the first head belong all missionaries to the Jews, and all that respectable class in England and elsewhere who think that Palestine belongs to the Jews, and that they should be allowed and encouraged and even assisted with funds to come here. On the other hand, it is asked how civilization would be promoted or the world would be the gainer if 7 or even 10 per cent—the country could not contain more than that—of the 7,000,000 Jews in the world could be planted here. Whatever views one may hold on this question, no one can deny that hired colonists are not likely to be successful colonists; and the history of the Jewish colonies in Palestine is every year illustrating the truth of this principle.

Attention needs to be called to the exaggerated estimates that are widely and constantly being circulated of the number of Jews now in this country. I may mention that I had, with my colleague, the British consul in this city, many interviews on this subject during the last half of 1891, and that we spent nearly two months in our investigations on this point, each by mutual agreement acting independently of the other. To our surprise the results were nearly the same. We used every possible means to secure approximate accuracy, and we certainly had at our command some methods for ascertaining the truth which were not accessible to missionaries to the Jews, much less to enthusiastic newspaper correspondents. As it is continued to be asserted in print that there are 100,000 to 150,000 Jews in Palestine, and 50,000 in Jerusalem alone, when the entire population of the city does not amount to the figure last named, it is necessary to reaffirm the results of my former investigations, which I have gone carefully over again during the past few months, namely, "that 42,000 or 43,000 represents pretty nearly the number of Jews now in Palestine," and that the number in Jerusalem can not be much over 25,000, and must certainly be considerably less than 30,000.

AMERICAN RESIDENTS AND TRAVELERS.

I have made an effort to ascertain the number of Americans residing in this consular district the past year and find it to be: Americans, 43; naturalized, 370; total, 413. The average number of Americans residing in this district during the past ten years is 40, and of naturalized Americans, 270; total, 310. Transient Americans to the number of 450 visited this country during the past season, or, more definitely (the season is thus reckoned here), from June 1, 1891, to June 1, 1892. This number is probably below rather than above what it should be, since absolute exactness is impossible; but 450 we are certain of. This is about 40 per cent of all the travelers that have been recorded as arriving in Palestine during the period mentioned. Seasons vary here, as everywhere else, and sometimes the number of American travelers is 50 or 60 per cent of the entire number. To avoid misapprehension, I may say that we do not reckon as "travelers" or "tourists" people who visit this country as "pilgrims," of which class there are from 5,000 to 10,000 annually.

The amount spent by these 450 travelers I have estimated from various reliable data to be about $75,000. This does not indicate all the money that comes from America to this country annually, for charitable institutions and different individuals receive large sums for various purposes, the amount of which it would be impossible to ascertain.

EXPLORATION AND DISCOVERIES.

The only systematic exploration that has been carried on the past year, or, in fact, that has been allowed by the Turkish Government, has been done by an American, acting for the English society known as the Palestine Exploration Fund, at Tell el Hesy, generally supposed to be the Hachish of the Old Testament, which was besieged by Sennacherib, and was of sufficient importance to be sculptured on slabs in the national galleries of Nineveh. This "Tell" is, as the word means, a mound of earth and ruins, and an effort has been made to remove it entirely bit by bit, in order to ascertain its structure and archæological contents. As is usual in such cases, successive layers of civilization or of building have been unearthed, and a variety of bronze implements, stone weights, and other relics have been found; but the most interesting "find" was that of an Assyrian inscription, thought to be of as early a date as 1400 B. C. It seems to have been addressed to the governor of the place, who was afterwards murdered by his own subjects.

Many of the discoveries that have been made about Jerusalem within twenty years past have been made by accident. The ground sinks down, a hole appears, and that leads to an examination, which results in a valuable addition to our archæological knowledge of the city. This was the way the magnificent ground plan and beautiful mosaics, covering 400 or 500 square feet, of St. Stephen's Church, near the Damascus Gate, was first brought to light. This was built by the Empress Eudocia, wife of Theodosius the younger, A. D. 460; and the spacious tomb chambers which she cut out of the solid rock near the church, and in which she was buried, likewise became known by accident.

During the past year a hole was discovered in a piece of land southwest of the city. A man went down in it to see what he could find, and large tombs and beautiful sarcophaguses were soon made known to the world. In connection with other archæologists, I have for many years tried to locate what

Josephus describes when he is marking out the line of the wall of circumvallation, which Titus, during the siege of Jerusalem, A. D. 66–70, threw around the city, as "the monuments," meaning the "tomb," "of Herod" (Wars V, 12, 2). He gives but few general indications, points, or objects well known at the time, and that of these "monuments" should be just about where this wonderful find has been made. I suppose Josephus had in mind Herod Agrippa II, and not Herod the Great, who was not buried in Jerusalem. The "rolling stone at the door" of the sepulcher 6 feet in diameter and 12 inches thick, the ornamentation on the sarcophaguses, the character of the masonry, and some other bits of evidence lead me to believe that this is the very monument to which Josephus referred.

Many modern scholars in the department of Palestinean archæology, having abandoned as untenable the traditional site of the Holy Sepulcher as the place of the crucifixion and burial of our Lord, have fixed upon the hill above Jeremiah's Grotto, 300 yards north of the Damascus Gate, as the site of the crucifixion. Adjoining this hill, which is covered with Mohammedan graves, is a large garden controlling the face of the hill, which is rock, for 150 yards. Excavations at different times in this garden have shown that 6 or more feet below the surface of the ground there exist interesting ruins, and in the rock itself there is a remarkable tomb, which has recently attracted much attention. An effort has been made the past year to purchase this garden, with its appurtenances, place it in the hands of a general committee, so that it should not be in the control of any particular religious sect, have excavations made, and everything that might be found preserved and exposed for the benefit of all who take an interest in such matters. The negotiations were, it was thought, successful, and the money ready to be paid; but very recently there has come a hitch of some kind, so that after all the project may fail.

In one American cemetery on Mount Zion I was overseeing the digging of a certain grave, and at a depth of 4 feet we came upon large blocks of stone. I tried to dig in two places near the first, but with similar results. At last we dug the grave elsewhere, and subsequently I employed men to remove the earth from the stones referred to; and at that point and at two others where I made examinations I found the remains of a large building, which, I judge, was a church. These foundations of pillars were on a pavement 6 or 7 feet below the surface of the ground, and it is a curious fact that whereever we attempt to dig a grave in that yard we come at the depth mentioned upon human bones and skulls. It seems shocking, but, as the ground is full of such remains, there is nothing to be done. This filling in must have been done long ago, for this ground has been American property since about 1830. I hoped to have walled in these finds, so that they might always be exposed; but this was too expensive for my private means, and I have partially covered them and marked the places, so that they can be avoided whenever it is necessary hereafter to dig graves.

PRICE OF LAND NEAR JERUSALEM.

The price of land about Jerusalem is something surprising when we consider that the place has almost no manufactures, very little foreign commerce, and that the city contains a multitude of poor people. Still, a great deal of land changes hands every year, and the prices asked and paid are simply exorbitant. I will give a few examples that have come within my own knowledge within two years past, since they will serve as general illustrations:

Two acres that were sold in 1890 for $250 per acre sold in 1891 for $750; 12 acres, sold in 1890 for $435 per acre, sold in 1892 for $2,178; 7 acres, sold in 1886 for $363 per acre, sold in 1892 for $6,534; 2 acres, sold in 1886 for $1,200 per acre, sold in 1892 for $3,000; half an acre, sold in 1881 for $200, sold in 1892 for $3,700, that is, for the half acre; 1 acre, sold in 1872 for $40, sold in 1892 for $12,000; two-thirds of an acre, sold in 1866 for $100, sold in 1891 for $3,600; 1 acre, sold in 1865 for $1,000, sold in 1891 for $24,000. These are not in one section or locality, but in different directions about the city, varying from one-fourth of a mile to 1 mile distant from the town.

Land is sold by the pick and dunum, Turkish measure, which, finding no tables anywhere, I have taken pains to work out into square inches and square feet. I give the results as computed by inches. A dunum is 40 by 40, or 1,600 square picks. A pick, land measure, mason's, etc., is 29½ inches, while the merchant's pick is only 27 inches. In 1 pick, land measure, there are 75 centimeters. One square pick is equal to 870.25 square inches or 6.04 square feet; 1 dunum is equal to 9,669.44 square feet; 1 acre is equal to 7,207.85 square picks or 4.496 dunums. Practically there are 4½ dunums in 1 acre.

I think land is almost always—certainly all land of any value is—sold by the pick.

REVENUE, ROADS, AND MISCELLANEOUS STATISTICS.

The revenues were as follows:

Public revenue:		
Tithes	$245,718	
Land tax	186,750	
Sheep and goat tax	44,987	
Military tax	29,007	
Shop tax	11,117	
Sale and mortgage fees	20,745	
		$538,324
Municipal revenue:		
Carriage road to Jaffa	6,360	
Gate tax	12,500	
Building	3,181	
Miscellaneous	4,115	
Selling liquor tax	1,820	
		27,976
Total		566,300

The carriage road between Jerusalem and Jericho, which has been so long in building, is ready for use only about one-half of the distance, and there is no prospect of its immediate completion. Funds are provided, then squandered; meantime the road waits.

The carriage road to Jaffa is badly out of repair, and the section of 12 miles between Ramleh and Jaffa has for two years past been in a shocking condition, in places simply impassible, and carriages have been obliged to go in the fields. Money has recently been sent from Constantinople for the repair of this road. The business of this road is already feeling the effects of the new railway. It is certain that there will be no work for a majority of the carriages that have hitherto found employment on this road, and it is now very difficult to say to what the owners of these carriages can turn their attention. Their condition is far worse than it could possibly be in a civilized country, where labor and capital can, without special loss, divert themselves from one form of industry to another.

Permits have been granted for thirty new houses and one hundred and fifty for repairs and additions, chiefly for buildings outside the walls of the town.

The amount of grapes brought into the city this season was not far from 1,400,000 pounds, of which the convents took 500,000 pounds; public houses, 400,000 pounds; private families, 200,000 pounds—all these for wine—and 300,000 pounds were for sale in the market for table use.

COMMERCE AND NAVIGATION AT JAFFA.

The imports at Jaffa for the year ended September 30, 1892, amounted to $1,656,215, and the exports for the same period amounted to $1,141,500.

The tonnage is reported at 646,403,743 tons entered and 644,403,665 tons cleared. The kind and amount of merchandise and the different nationalities represented in the shipping list are given in detail in the inclosed reports from our consular agent at that place.*

SELAH MERRILL,
Consul.

UNITED STATES CONSULATE,
Jerusalem, November 10, 1892.

FERTILIZERS IN ANTIGUA.

REPORT BY VICE-CONSUL GALBRAITH.

Prior to the year 1884 the use of patent manures for the growth of the sugar cane was not looked upon with favor by the general body of planters here, the general belief being that patent manures exhausted the soil and the sugar made therefrom was inferior to that made from canes grown on lands manured by farmyard manure. There are no data to guide us in comprising the quality or quantity per acre then with the results now obtained by those planters who largely employ fertilizers on their plantations, but one thing is certain, that the crisis in this industry in 1884 clearly demonstrated that if the sugar industry was to be continued here better cultivation and a generous application of fertilizers to the soil were essential. This is now becoming a standard practice with our leading planters, and, as a consequence, the importation of fertilizers is on the increase.

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* Tables filed for publication in Commercial Relations.

There are no figures showing the imports previous to 1889. In the following table I give the figures for the years 1889–'91 and the countries from whence imported:

From—	1889.	1890.	1891.
United Kingdom	$74,034	$79,115	$54,445
United States	....	2,950	1,120
Barbados	8,931	7,940	2,090
West Indies	2,079	4,630	3,060
British North America	....	40	5,085
Antigua	....	36,515	27,590
St. Christopher	....	45.590	29,950
Dominica	....	....	7,390
Montserrat	....	575	1,405

The fertilizers chiefly imported are sulphate of ammonia, potash, superphosphates, basic slag, nitrate of soda, and mixed fertilizers.

Sulphate of ammonia heads the list. It is chiefly imported from Scotland, where it costs from $50 to $60 per ton of 2,240 pounds. It is sold here at from $75 to $80, and is guarantied 24½ per cent. It is applied in the autumn at the rate of from 2 to 3 cwts. per acre.

Potash is imported now more largely than in former years, and the indications are that the imports of this fertilizer will go on increasing for some time to come. What little has hitherto been imported comes chiefly from Barbados, where it costs $68 per ton. This fertilizer, along with superphosphates or basic slag, is applied in the spring in the following manner: To every ton of potash apply of either superphosphates or basic slag 5 tons, and mix an equal quantity of ashes; then apply to the soil at the rate of 3 cwts. per acre. This has been found to give good results.

Superphosphates are imported from Barbados, but I expect that the trade in this fertilizer will go to our manufacturers in Savannah. The crude material is there, and I see no reason why the manufactured article can come from anywhere else.

For the past year the feeling among planters has been in the direction of basic slag, or, as it is known in the States, odorless phosphates. What has been already imported has given general satisfaction, and I anticipate that during the coming season it will be imported in large quantities. It comes from England, is guarantied to contain from 16 to 18 per cent of phosphoric acid, and can be bought in London at $10.80 per ton of 2,240 pounds. This, like the foregoing fertilizer, is applied in the spring at the rate of from 2 to 5 cwts per acre.

Nitrate of soda was one of the fertilizers chiefly imported here; but of late years the quantity imported has been very small, sulphate of ammonia having replaced it. The price here is from $50 to $60 per ton.

Of mixed manures, "Lawes" sugar-cane manure has been the favorite. It gave general satisfaction, and the results from it were, on the whole, good. It was sold at $60 per ton, and was guarantied to contain 9 per cent of ammonia (nonvolatile), 20 per cent of soluble phosphates, 3 to 4 per cent of insoluble phosphates, 4 per cent of potash, and 7.4 per cent of sulphate of potash. There were a great many brands of mixed manures imported, and, I believe, will again be imported the coming year, but the tendency among planters is to get pure fertilizers and mix on the plantations. The general belief among planters is that it will not pay to import mixed fertilizers. Basic slag, superphosphates, potash, and sulphate of ammonia are the fertilizers of the future for this island. And, as regards the first two, they are sure to come from the United States. The freight from Europe is, as a rule, nearly double that from the United States.

Lately there have been several inquiries from manufacturers of fertilizers in the Southern States about the trade here, and one large manufacturing company sent their representative here. This indicates that, if the trade is worth having, efforts will be made by our manufacturers to get it.

Manures are on the free list. The only tax on them is the trade tax of 12 cents per bag. Superphosphates and basic slag are imported in bags, sulphate of ammonia and nitrate of soda in puncheons.

For the guidance of manufacturers, I append a few analyses of the soil of this island.

To the southwest the formation is volcanic; northeast the general characteristic is limestone formation. In the volcanic section the soil is clayey and heavy. In the limestone section the soil is light and very rich and productive.

The following analysis is of a soil on a sugar plantation southeast of the town, the figures representing the plant food in soils 3 inches deep per acre: Lime, 6,783 pounds; magnesia, 980 pounds; potash, 27 pounds; oxide of iron, none; phosphoric acid, 18 pounds; sulphuric acid, none; silica, 1,014 pounds; nitrogen, 1,687 pounds.

The next analysis is of a soil taken from a plantation at the base of the volcanic hills in the southwestern portion of the island and is as follows: Lime, 4,885 pounds; magnesia, 747 pounds; potash, 18 pounds; oxide of iron, 35 pounds; phosphoric acid, 13 pounds; sulphuric acid, none; silica, 5,837 pounds; nitrogen, none.

In the northeast of the island the soils are, on the whole, light, and in wet years are very productive. In this section some of the finest and most productive plantations are located.

The third analysis was as follows: Lime, 400,000 pounds; magnesia, none; potash, 267 pounds; oxide of iron, 3,500 pounds; phosphoric acid, 87 pounds; sulphuric acid, none; silica, none; nitrogen, none.

The following is the analysis of the soil on a plantation more to the north of the foregoing, in the same district: Lime, 280,000 pounds; magnesia, none; potash, 167 pounds; oxide of iron, 61 pounds; phosphoric acid, 217 pounds; sulphuric acid, none; silica, 1,242 pounds; nitrogen, none.

I may remark that the principal proprietors of sugar plantations on this island are resident here, and of those proprietors who are not resident their attorneys have the power to buy where the price suits them. If our manufacturers wish to cater to the trade of this island, they must push their goods by sending representatives or consigning small quantities to some of our leading merchants. If once the market is secured, it will be an easy matter to hold it. As I have already remarked, freights are in their favor. The accommodation given by European firms can, I am sure, be also given by our manufacturers. I am told three months is the usual time, but manufacturers can make their own terms. This being done, I anticipate that a large portion of the trade in fertilizers will go to the United States in coming years.

SAM'L GALBRAITH,
Vice-Consul.

UNITED STATES CONSULATE,
Antigua, November 20, 1892.

FIRES IN FUCHAU.

REPORT BY CONSUL GRACEY.

In response to the circular of December 1, 1891, calling for a report in regard to building construction and fires in cities of this consular district, I have the honor to report as follows:

The city of Fuchau, within and without the old walled city, has a population of about 1,000,000 persons, including 10,000 who live on the river in sampans, junks, etc. The better houses are built of adobe brick and covered with tiles, which are generally sun-dried. The bricks are laid in cement composed of wet earth mixed with finely cut straw and occasionally a small quantity of lime being used. These receive an outside coating of plaster made in the same way, which, when dry, is given thick coats of whitewash.

Most of the houses are built one story in height and are very poorly constructed. A framework of scantling being erected, all the interspaces are filled in with the clay and straw mixture above referred to. Boards a foot or so wide are nailed on both sides of the framework at the base, and the space between the outer and inner boards is filled in with a soft mixture and packed down with rammers. When well beaten down the same boards are moved up their width and the same process repeated until the top of the building is reached. This makes a very weak wall from 4 to 6 inches thick.

The buildings are placed against each other on streets which are from 6 feet to 15 feet wide. The houses are covered with light boards, on which the tiles are laid in a poor cement composed as above mentioned. When a fire breaks out there is nothing to stay the progress of the flames but fire walls and the pulling down of houses which lie in the course of the spreading fire. The fire walls, however, are the chief dependence, and they are a very great protection. These are built at intervals through the city and usually inclose about five hundred houses. They are from 20 to 30 feet high, and are made of sun-dried brick and of small stones and cut straw, etc.

When a fire is well under way, it is seldom extinguished until all the buildings within the fire walls are destroyed.

At this port many of the soldiers are required to serve as firemen. They are supplied with ladders, hooks, and pails, and are under the direction of a mandarin. The mandarin will mount to the top of a building near the fire, having with him several men bearing banners, flags, etc. These they wave at the fire and call upon the fire demon to stop his ravages. They are also used to signal to the firemen. At the same time a long brass horn, such as is used by tallyho coaching parties, is blown furiously at the flames. This has suggested the thought that in cases of large fires in our American cities a system of signals of flags by day and lanterns by night might be used by the chief of the fire department and his aids to great advantage, as much time is often lost in communicating directions when an extensive fire is raging.

SAMUEL L. GRACEY,
Consul.

UNITED STATES CONSULATE,
Fuchau, September 20, 1892.

PETROLEUM TRADE OF EGYPT.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

I have the honor to inclose herewith a translation of an article on petroleum which was published at Alexandria in the Bulletin Mensuel de la Chambre de Commerce Consultative Française d'Alexandrie d'Egypte in its number of July 15, 1892. The information contained in this article can not fail to be of great interest to American shippers of petroleum. I have appended to it a statement showing the cost of entering petroleum at Alexandria, and the cost of storage at that port.

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES CONSULATE-GENERAL,
Cairo, December 9, 1892.

PETROLEUM IN EGYPT.

[Inclosure 1 in Acting Consul-General Grant's report.—Translation.]

Petroleum occupies a prominent place among Egyptian imports.

There arrive in the country yearly an average of 600,000 to 700,000 cases of petroleum, imported alone from America and Russia.

The consumption of Russian petroleum is increasing in very noticeable proportions, and the time is not far distant when we shall see American petroleum entirely supplanted by it.

The following table shows the progress of Russian importations since 1884:

Year.	American.		Russian.	
	Quantity.	Value.	Quantity.	Value.
	Cases.		*Cases.*	
1885	460,000	$575,000	169,000	$210,000
1886	265,000	308,500	340,000	384,500
1887	411,000	442,000	362,000	365,000
1888	130,000	142,500	452,000	452,500
1889	210,000	235,000	641,000	635.000
1890	100,000	114,500	515.000	540,000
1891	96,000	100,000	604,000	620,000

The prices of petroleum have fallen imperceptibly since 1885 from 25 Turkish piasters, or about $1.24, per case of two cans of 4 gallons each to 20 Turkish piasters, or about 99 cents. The price of American petroleum stands 21 Turkish piasters, or about $1.04, per case; but Russian is at 16.75 Turkish piasters, or about 83 cents per case.

There is great competition in Russian petroleum. The present stock (July 15, 1892) is: At Alexandria, more than 200,000 cases; at Port Said, more than 100,000 cases; at Damietta, more than 60,000 cases. In Cairo and in other towns of Egypt there are considerable quantities.

American petroleum is now consumed only in Cairo and Alexandria.

The progressive improvement in the quality of Russian petroleum permits the statement that very soon American petroleum will disappear entirely from the market.

ENTERING AND STORAGE AT ALEXANDRIA.

[Inclosure 2 in Acting Consul-General Grant's report.]

The charge of customs estimation is as follows: Russian, 20 Turkish piasters (99 cents); American ordinary, 21 Turkish piasters ($1.04); American safety, 30 Turkish piasters ($1.48).

The dues levied are 8½ per cent.

The extra customs tax is 20 paras (2½ cents) per case.

The landing charges are 80 Turkish piasters ($3.95) per thousand.

Porterage charges per thousand are as follows: From the lighter to railway wagon, 60 Turkish piasters ($$2.96\frac{6}{10}$); from the lighter to carts, 60 Turkish piasters ($$2.96\frac{6}{10}$); from the lighter to the store, 80 Turkish piasters ($3.95); from the store to carts, 60 Turkish piasters ($$2.96\frac{6}{10}$); from the store to railway wagons, 60 Turkish piasters ($$2.96\frac{6}{10}$).

The charges for storage per case are as follows: One week, 4 paras (about half a cent); two weeks, 7 paras (about nine-tenths of a cent); one month, 12 paras (about 1½ cents); two months, 21 paras (about 3⅝ cents).

For stores by the year, etc., the following are the charges: For 250 square meters and upwards, 54 Turkish piasters ($2.67) per square meter; 125 to 250 square meters, 59 Turkish piasters ($2.92) per square meter; less than 125 square meters, 62 Turkish piasters ($3.07) per square meter. One square meter takes 6 cases.

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 150.—MARCH, 1893.

ELECTRICITY IN AGRICULTURE.

In compliance with a resolution of the Senate of the United States, the consuls were directed by the Department, under date of April 24, 1892, to prepare reports on the use of electricity as a power in the propulsion of farm machinery and implements and in the propagation of plants in their respective districts. The following are the only replies received which contain anything of interest regarding electricity, all the others merely notifying the Department that electricity in connection with agriculture was unknown in their districts.

AUSTRIA.

REPORT BY CONSUL RUBLEE, OF PRAGUE.

The use of electricity as a power in the propulsion of farm machinery and implements and in the propagation and growth of plants has not been adopted in Bohemia. I have made inquiries of persons most likely to know, and can learn of no instance where electricity is used for these purposes. At an agricultural exhibition held at Prague three years ago a local firm caused some farm machinery to be operated by electricity, but the agriculturists of Bohemia did not take up the idea and put it into practical use. In this country, where labor is so cheap and landed proprietors feel the obligation of keeping the peasants dependent upon them supplied with work, a surprisingly large amount of field labor is done by hand, even when there is machinery by which it can be done. There is, for this reason, but little demand for labor-saving inventions, and the introduction of such an innovation as electricity will be very slow.

WILLIAM A. RUBLEE,
Consul.

UNITED STATES CONSULATE,
Prague, June 28, 1892.

BELGIUM.

TRANSMITTED BY CONSUL ROOSEVELT, OF BRUSSELS.

MR. DUMONT TO CONSUL ROOSEVELT.

[Translation.]

CHASSART, BELGIUM, *August 30, 1892.*

I hasten, Mr. Consul, to reply to your letter of August 27, 1892.

I have not made any trial in the propagation of plants by the application of electricity, but only in the transmission of motive power. I have been able to work a thrashing machine which requires about 12-horse power at a distance of about 800 meters. This permitted me to thrash my wheat stack in utilizing a stationary machine in my mills, instead of a movable one.

In a country where coal is as cheap as in Belgium that is not of very much profit. It would be different in a country where coal is dear and where motive power is produced by a waterfall.

I beg you, Mr. Consul, to accept the assurance of my distinguished consideration.

A. DUMONT.

MR. MARICHAL TO CONSUL ROOSEVELT.

[Translation.]

CHARLEROI, BELGIUM, *August 13, 1892.*

Mr. Dumont, of Chassart, has been kind enough to send us the letter which you wrote him July 18 on the subject of agricultural work performed by electricity on his place. We undertake to put ourselves in communication with you, because we have had the honor of executing the work on his place.

Some time ago we had occasion to make complete notes on the subject of this study. We have asked for them, but, as they have not yet been returned and time is passing, we now send you the principal information, reserving, to forward you later, other information, if it should be agreeable to you.

At Mr. Dumont's there is considerable force at the center of the several establishments which form his agricultural industry. In a general way, when a considerable total force is required for these several parts, it is decidedly more advantageous to establish at the center of the works a machine of economical consumption and to divide the electric force. For example, we suppose an enterprise such as that of Mr. Dumont, composed of grain silos, mills, distillery, malt house, brewery, sugar works, refinery, and farming—or, more properly speaking, cultivation of fields and all that followed. In these conditions each of these parts necessitates the employment of motor power, most of the time by separate steam machines when they are not concentrated, and also by separate boilers. These motors and separate boilers require workmen to conduct them. Further, each of these machines, being of reduced force, necessarily costs more for fuel, especially the use of locomotives, of which the normal consumption may reach four times the consumption of an ordinary powerful machine.

From an economic point of view, there is an important result to be obtained by the centralization of the force in one single point and the subdivision by electric motors, which require neither firemen nor engineers, and which by their use rarely cause a loss of above 35 to 40 per cent of the original strength. It then follows that if, on the one hand, in the consumption of fuel you can economize more than two-thirds of it, and, on the other hand, you can also suppress the greater part of the manual labor, there will finally result a considerable economy. This is yet more perceptible in sending power into the fields, either for plowing or for thrashing grain, because these two operations require the use of movable steam engines, involving not only considerable manual labor for conducting the machines, but the necessity of transporting to the fields, and often for a long distance, fuel and even water to supply the boilers. Besides, these machines are always very heavy and difficult to manipulate, on account of the horizontal and vertical position of some of their parts, which should be kept in line and which is often scarcely realized on account of the uneven ground. It is entirely different with electricity, of which the motors for great power are very light and take any position.

These remarks apply to the thrashing of grain as well as to plowing. From various considerations it not only results in the economy of fuel and manual labor, but in far easier and more rapid work; therefore, also, an economy of time.

As to the distance to which the electric force may be sent for the execution of this kind of work, it is considerable, and, to give you an idea, we can state that we are at present establishing in Belgium a transport of considerable force, having for object the execution by electricity of all work requiring force power in the establishment of the new railway line uniting Dinant with Jemelle. The length over which the force is to be transported is from 10 to 12 kilometers; and the force created is divided between the apparatus furnishing light in the tunnel, apparatus for boring rock in tunnels, apparatus for raising water, apparatus producing the motive power for traction, apparatus for lighting fuse for blasting, and lastly, apparatus for mixing mortar the same as that for thrashing grain in the country.

In a few weeks, when this work shall be in operation and if it would interest you, it would be a real pleasure for us to accompany you there and to show it to you.

A. MARICHAL,
For the Manager.

FRANCE.

MARSEILLES.

REPORT BY CONSUL TRAIL.

Electricity has not as yet been put to agricultural uses in this district, it being employed here only in lighting one street and several theaters and in propelling one short tramway line.

CHARLES B. TRAIL,
Consul.

UNITED STATES CONSULATE,
Marseilles, July 11, 1892.

NANTES.

REPORT BY CONSUL SALLIER-DUPIN.

Electricity as a power in the propulsion of farm machinery and implements is not employed in this consular district; and it is only within the past four years that it has been introduced as a factor for lighting the streets and buildings in the cities of Nantes, Tours, Saumur, St. Nazaire, St. Brieuc, Châteaulin, and Hennebont. In the majority of these cities the electric plants are small and of no particular interest.

At St. Brieuc the electric motor is hydraulic, of great power, and situated at 12 kilometers from the city. It furnishes 1,200 lamps of the strength of from 10 to 25 candles each, and gives much satisfaction.

About 4 kilometers from Hennebont, which has a steam electric motor of 55-horse power, the Société générale des cigares français has two large establishments for the manufacture of tin plates. One of these, at Locrist, is lighted by electricity of 35 ampères strength; the motive power is steam. The other and larger works, at Kerglaw, are also lighted by electricity. The motive power in this case is situated at a distance of 4 kilometers from the works. The lamps are of 50 ampères, and the power, which is hydraulic, is of 35-horse power.

H. DE SALLIER-DUPIN,
Consul.

UNITED STATES CONSULATE,
Nantes, August 10, 1892.

ROUBAIX.

REPORT BY COMMERCIAL AGENT ATWELL.

So far as I can learn, electricity is not in use in this department, either as a power in the propulsion of farm machinery and implements or in the propagation and growth of plants. It seems to be limited to lighting factories, cafés, and a few shops. It can not be considered as in general use in the department, even for lighting purposes.

W. P. ATWELL,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Roubaix, July 7, 1892.

ROUEN.

REPORT BY CONSUL WILLIAMS.

In 1878 two conservatories at the Paris Exhibition were lighted by electricity as an ornament. The gardener thought that the plants and flowers thus lighted had a more lively air than those dependent upon gas or any other light other than the sun and the moon. In consequence of the belief of this gardener, the electric lights were kept continually burning, and I am told this perpetual light gave a kind of extra vigor to the plants, but that the expense was greater than the result obtained.

Attempts have been made to pass electric currents in buckets where seeds were washed preparatory to sowing in order to destroy microbes invisible to the naked eye. It has been claimed that the germinating power of the seeds was thus increased, but the experiments were considered rather more curious than practically useful.

As a motor, electricity is only practicable in proximity to large waterfalls. The separation of the fluid in transmission renders it more uncertain and expensive than steam power.

CHAS. P. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Rouen, April 21, 1892.

ST. ETIENNE.

REPORT BY VICE-COMMERCIAL AGENT BURROUGHS.

In this consular district electricity as a motive power is in its infancy. No machines of the kind mentioned in the circular are known in this region. Up to the present electricity is only used for lighting purposes. However, as a previous report of Mr. Loomis stated, steps are about to be taken to put all the looms in St. Etienne in motion by electricity; but the application of this new force to agricultural implements has not yet been thought of. I may say the same of using electricity as a stimulant to the growth of plants.

HASTINGS BURROUGHS,
Vice-Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
St. Etienne, July 6, 1892.

GERMANY.

REPORT BY COMMERCIAL AGENT WASHBURN, OF MAGDEBURG.

The influence of atmospheric electricity in the propagation of plant life has long since been recognized. Attempts, however, to solve the problem of the exact relations existing between this natural force and the growth of plants have been numerous, it is true, but invariably futile. The ill success attending these efforts naturally turned the attention of scientific agriculturists to another quarter—to the possibility of experimenting with batteries. Much that has been written upon this subject is confusing to the general reader. Widely differing results have been published, and it has followed that neither the favorable nor the unfavorable influence can be said to have been clearly established. So far as the German experiments go, the substance of most of them show results decidedly adverse to electricity—at least to its employment as a practical factor. Two classes of tests will be reviewed, viz, first, those with galvanic batteries, and, secondly, those with electric light.

INFLUENCE OF THE ELECTRIC CURRENT UPON VEGETATION.

As early as 1859 one Helmert conducted a series of experiments with pine-tree seeds, peas, and lettuce. At one end of the planted area a plate of copper was sunk into the soil and at the other end one of zinc. The plates were then connected with an exposed copper wire. This method of introducing the current, I may say in passing, is usual. A more even and early germination of the pine seeds followed, though no acceleration in growth was perceptible. The peas and lettuce showed the beneficial effects in healthier leaves and blossoms and in improved fruit.

About two years later Fichtner, in exactly the same way, obtained the most brilliant results, as the following table shows:

Variety.	Yield per Austrian joch.*		Straw.	
	Usual culture.	Galvanic culture.	Usual culture.	Galvanic culture.
	Pounds.	*Pounds.*	*Pounds.*	*Pounds.*
Barley	2,048.2	2,935.2	3,290.7	5,137.8
Peas	2,523.3	3,085.4	3,349.1	4,407.7
Summer wheat	1,482.8	2,317.3	4,778	4,839.2
Buckwheat	425.7	967.3	5,782.9	6,771.1

*1 Austrian joch = 1.422 acres.

The increase in the yield by electrical culture was from 16 to 127 per cent higher than by ordinary culture. This experiment, however, was not considered of much value, because the ground electrized was laid with so-called air drains, which had a favorable influence on the moisture of the soil, while the ground in an ordinary state of cultivation was not so drained. In order to observe the power of electricity to resolve the component parts of the soil, two samples of the latter were taken, one of which was subjected to an electrical stream for two weeks and the other left untouched. At the end of the time mentioned 100 grams of each sample were mixed with 1,000 cubic centimeters of water, and it was found that 0.135 gram of the electrized earth and 0.085 gram of the nonelectrized soil were soluble.

Blondeau experimented with an induction, instead of a constant stream, and noted marked effects upon seeds and fruits. The latter ripened earlier, and apples, pears, and peaches at once mellowed under the influence of the current. Pea, bean, and wheat seeds were soaked in water to give them conductibility, then subjected to an induction stream lasting several minutes, and afterwards sown in selected garden soil. These seeds germinated much earlier than the others. Further, the growth of the plants was quicker and their leaves and stalks stronger and of a darker green.

More recently (1882) Tschinkel called attention to the propitious influence of electricity upon plant growth. His tests showed a difference of from six to eight days in favor of the germination of seeds planted in soil through which the electric current had circulated. The plants also had a quicker and healthier growth. The observations of the experimenter led him to attribute the favorable influence of electricity to the decomposition of the salts and other component parts of the soil.

On the other hand, Prof. Wollny, of the Royal Technischen Hochschule, in Munich, obtained results of a distinctly different character. Dr. Wollny has collected in various publications most of the investigations that have been made, and his interest in the subject led him to conduct an independent series of experiments at the time of the International Exposition at

Munich.* For this purpose two wooden boxes with glass covers were taken; they were 20 centimeters high, of like width, and 80 centimeters long. They were first filled with a like quantity of moist and carefully prepared garden soil. Next, at both ends of one box a zinc plate was sunk deep into the earth and connected with the pole of a battery consisting of 10 Meidinger elements. Further, both boxes were sown crosswise with a great variety of seeds—radishes, barley, wheat, mustard, sunflowers, etc.—and in such a way that the rows and plants were at equal distances. The plants under the influence of the electric current sprang up later and showed a much more uneven and feebler growth.

Perhaps the first experiments to be undertaken on a really extensive scale were those conducted by Prof. Holdefleisz in the summer of 1884 on the Wangern farm, near Breslau, and reported in the Magdeburger Zeitung the following year by Prof. Märcker.† Two theories are tenable to account for the influence of electricity: (1) Electricity affects plant growth in much the same way as other natural forces, as light and warmth; (2) it acts as a solvent and decomposes the component parts of the soil, especially salts, thereby enriching it. This influence may be established in two ways—the positive and negative. With regard to the negative method, if the electric forces in the atmosphere are beneficial to plant growth, it follows that an abnormal and unfavorable change would at once be perceptible if electricity alone of the natural forces could be excluded. The French agricultural chemist Grandeau succeeded in accomplishing this by means of an ingeniously contrived iron cage. The other natural forces were, of course, left in full play. The result was that the plants, deprived of their natural electricity, were very backward in their growth. The positive method—adopted in the Wangern farm experiment—consists, as would be implied, in the introduction of electricity by artificial means.

Prof. Holdefleisz had already observed the favorable influence of electricity on plants isolated in boxes with glass tops, but had very grave doubts as to whether it could be employed to advantage in the open field. In order to make the test, a beet-sugar field was selected with the plants already above the ground and in an even state of cultivation. The rows were planted from east to west. Copper plates 50 by 80 centimeters were sunk to a depth of 50 centimeters and in such a manner as to cover the width of two rows. The plates of each pair were 56 centimeters apart and connected through insulated wires with the positive and negative poles of a battery of 14 Meidinger elements. In still other rows electricity was generated without a battery. Copper and zinc plates were in the manner above described placed at a distance of 33 meters from each other and connected with wire. In order to increase the strength of the current, pairs of copper-zinc plates riveted together were sunk at regular distances between the two end plates, so that the following order was preserved: Copper, zinc, copper, zinc, etc.

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* E. Wollny. Ueber die Anwendung der Elektricität bei der Pflanzenkultur. Munich, 1883. Theodor Ackermann. P. 28.

† Magdeburger Zeitung, 1885, No. 207.

The same plan was followed with a field of potatoes. The experiment began on May 20 and was continued uninterruptedly the entire season. The following observations were taken:

(1) The existence of the current could be detected during the entire summer.

(2) With the aid of a delicate electrometer the presence of the electric current could be established in the parcels between each pair of plates.

(3) The rows with the battery plates did not differ during growth from those of other fields.

(4) On the other hand, the rows with zinc and copper plates began about ten days after the commencement of the experiment to have a fresher and healthier appearance in comparison with the average of the other fields. This appearance continued as long as the tops were growing; from the middle of July, however, no further difference could be seen.

(5) The crop grown under the influence of the battery current was in no way unusual, either in quantity or quality.

(6) The yield of those rows with the copper and zinc plates showed a marked increase—15 per cent in beets and 24 per cent in potatoes.

(7) No difference in quality was in any case demonstrated. The percentage of sugar contents fluctuated from 14.3 to 14.5; the average starch contents of the potatoes were 21.5 per cent.

The experimenter, while not regarding the test with copper and zinc plates as conclusive, considered it significant, in view of the largely increased yield, and also as practical, in view of the trivial cost of the necessary apparatus.

Prof. Holdefleisz's experiment was followed with great interest. One immediate result was to induce Oberamtmann Braune, of Biendorf, to undertake a series of tests along the same lines.* Seven rows of beets already above the ground were selected, each row 56 meters long. The two outside rows right and left were subjected to electrical influences in precisely the same manner described in the Holdefleisz experiment. A simple current, generated by copper-zinc plates, was applied to the two outside rows on one side and a 14-Meidinger-battery current to the two outside rows on the other. The battery was buried in a substantial wooden box to the same depth as the plates (65 centimeters). The three inside rows were left neutral. The experiment began on June 3 and was continued until the crop was harvested. No perceptible variation in the growth of the leaves or in the general appearance of the plants was at any time remarked. Up to August 7 the current was strong enough to turn the needle to an angle of almost 90°. From this time on, however, it began to grow weaker. On September 5 it was almost imperceptible, and on September 13 the needle ceased to move.

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* Magdeburger Zeitung, 1885, No. 539.

The crop began to be harvested on October 26 and was at once analyzed with the following results:

Description.	Weight of beets per morgen.*	Polarization.			
		Brix.	Sugar.	Nonsugar.	Quotient.
	Centners.†				
Simple current	230	18	15.3	2.7	85.6
Battery current	235	17.9	15.5	1.4	86.6
Without electricity	210	16.7	15	1.7	89.7

* 1 morgen=0.63 acre. † 1 centner=112 pounds.

These results in general confirmed those of Prof. Holdefleisz, both as regards quantity and quality. There was an increase in the yield of those rows subjected to the electric current—20 centners in the rows where copper and zinc plates were used and 25 centners where the battery was employed. On the other hand, with reference to the quality, the slight increase of 0.5 and 0.3 per cent in the sugar contents was regarded as too small to have any significance whatever.

But by far the most exhaustive experiments of all have been conducted by Prof. Wollny, whose special work in this field has already been referred to. The first of his series of tests took place in 1883 and was conducted on a rather limited scale.* Five garden plots were selected, each 4 meters long and 1 meter wide. There was a space of 1.2 meters between the plots, and they were all cut off from each other by planks sunk to the depth of 25 centimeters. Zinc plates were sunk to the same depth at each end of the three plots and connected with batteries by means of copper wires, thus: Plot I was provided with a 3-Meidinger-element battery with induction current; II, 6-Meidinger battery; III, 3-Meidinger battery; in plot IV two copper and zinc plates were connected by a copper wire 1.5 meters above the soil; plot V was left untouched. A constant current was kept up from first to last. It was regulated by a galvanometer, and whenever the stream began to grow weaker the elements were renewed. This happened every three or four weeks. The current generated by the copper and zinc plates was weak compared with the others. The soil was everywhere in the same state of cultivation, and was composed of a calcareous sand 24 centimeters deep and resting on a vein of limestone. Further, each plot was divided into four sections and planted on May 2 with summer rye, beans, rape seed, and potatoes.

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* E. Wollny. Forschungen auf dem Gebiete der Agrikulturphysik. Heidelberg, 1888. Carl Winter. Vol. XI, p. 94.

In this manner each variety came under all the influences at work. The length of time taken in the germination of the seeds is shown in the following table:

Description.	Number of kernels.									
	May—									Total.
	7.	8.	9.	10.	11.	12.	13.	14.	15.	
Summer rye:										
Induction stream	35		1		2	1		1		40
6 Meidinger elements	35			1		3	1		1	41
3 Meidinger elements	37	2	1		1					41
Copper-zinc stream	41									41
Without electricity	36			1	2		1			40
Beans:										
Induction stream	6	27	8						1	42
6 Meidinger elements	14	18	6	1			1			40
3 Meidinger elements	7	23	10	1						41
Copper-zinc stream	6	21	10	4	1					42
Without electricity	5	19	9	5		1		1		40
Rape seed:										
Induction stream	36									36
6 Meidinger elements	36			1		1	2			40
3 Meidinger elements	37	1		2		1		1		42
Copper-zinc stream	34		3							37
Without electricity	36									36

The yield per section, or quarter plot (1 square meter), mentioned above was:

Table showing the yield of summer wheat (42 plants).

Description.	Number of blades.	Weight of grain.	Weight of straw.	Weight of 100 kernels.
		Grams.	*Grams.*	*Grams.*
Induction stream	291	182	483	2.71
6 Meidinger elements	286	219.8	461	2.84
3 Meidinger elements	246	197.8	461	2.84
Copper-zinc stream	307	201.6	348	2.64
Without electricity	239	228.7	368	2.76

Table showing the yield of rape seed (42 plants).

Description.	Weight of seeds.	Weight of straw.
	Grams.	*Grams.*
Induction stream	114.8	369
6 Meidinger elements	94.5	430
3 Meidinger elements	103	400
Copper-zinc stream	114.7	439
Without electricity	118.1	376

Table showing the yield of beans (42 plants).

Description.	Weight of beans.	Weight of straw.	Weight of 100 beans.
	Grams.	*Grams.*	*Grams.*
Induction stream	517.5	720	64.5
6 Meidinger elements	514.5	745	69.4
3 Meidinger elements	420	567	64.5
Copper-zinc stream	600	850	68.5
Without electricity	651	882	59.5

Table showing the yield of potatoes (5 plants).

Description.	Number.	Weight.	Average weight of a bulb.
		Grams.	*Grams.*
Induction stream	97	3,721	38.3
6 Meidinger elements	125	3,105	24.8
3 Meidinger elements	124	3,153	25.4
Copper-zinc stream	91	3,978	43.7
Without electricity	104	3,776	36.3

No variation in the germination of the seeds or in the growth of the plants was observed. From an examination of the foregoing tables, it will be seen that in almost every case the yield of those plants affected by electricity was considerably under the normal crop. The potatoes alone, grown in the sections where the copper-zinc stream was applied, showed an increase of 6 per cent in the quantity and a slight improvement in the quality. This demonstrated evidently that the limit to which electricity might be applied with favorable results had been exceeded, and pointed to the advisability of using weaker currents by a repetition of the experiments.

The tests were next continued in 1886 and 1887. The plots selected were larger than those taken for the trial of 1883. Four rows were reserved, each 16 meters long 2 meters wide, and separated from each other by a distance of 1.2 meters. Each row was divided into eight sections of 4 square meters. The soil, which was in part artificially built, had a depth of 30 centimeters and rested on a limestone foundation. It was harrowed in the spring of 1885 and again in the spring of 1886. Each section was fertilized with 200 grams of guano in 1886 and 400 grams in 1887. The manner of establishing the electric current was the same as before described. A different variety was planted in each one of the eight sections of the four rows and in corresponding sections. Weeds were carefully kept out. The strength of the current was ascertained every fortnight by means of the galvanometer, and the stream renewed whenever necessary. The copper-zinc current was very weak, the needle never registering at maximum more than 3° or 4°, while the Meidinger battery current was somewhat stronger (12° maximum). This last was much weaker than in 1883. As in the preceding experiments, the germination and growth were alike. The yield of each variety planted for the two years mentioned is shown in the following tables:

Table showing the yield of summer rye.

Description.	1886 (sown April 24, harvested August 12).			1887 (sown April 13, harvested July 23).		
	Grain.	Straw.	Chaff.	Grain.	Straw.	Chaff.
	Grams.	*Grams.*	*Grams.*	*Grams.*	*Grams.*	*Grams.*
Induction stream	1,133	2,240	83	933	2,290	54.5
5 Meidinger elements	1,086	2,230	72	...	...	...
4 Meidinger elements	...	...	...	879	2,140	56.5
Copper-zinc stream	1,009	2,190	61	838.5	2,270	53
Without electricity	1,078	2,320	87	948.4	2,340	72

Table showing the yield of rape seed.

Description.	1886 (sown April 27, harvested August 23).			1887 (sown April 13, harvested August 8).		
	Seed.	Straw.	Chaff.	Seed.	Straw.	Chaff.
	Grams.	*Grams.*	*Grams.*	*Grams.*	*Grams.*	*Grams.*
Induction stream	339	1,930	541	775	2,880	179.5
5 Meidinger elements	300.5	1,940	445	...	...	...
4 Meidinger elements	...	...	...	755	2,570	194.4
Copper-zinc stream	418	2,200	521	761.6	2,480	325
Without electricity	405.8	2,340	681	773	2,640	250.7

Table showing the yield of peas.

Description.	1886 (sown April 24, harvested August 9).		1887 (sown April 13, harvested July 29).		
	Peas.	Waste.	Peas.	Straw.	Waste.
	Grams.	*Grams.*	*Grams.*	*Grams.*	*Grams.*
Induction stream	1,420	1,520	548	1,080	264.8
5 Meidinger elements	1,570	1,630	...	...	...
4 Meidinger elements	...	...	588	1,120	232
Copper-zinc stream	1,490	1,500	571	1,050	189
Without electricity	1,380	1,420	592	1,130	202

Table showing the yield of beans.

Description.	1886 (sown May 5, harvested August 29).		1887 (sown April 13, harvested August 13).		
	Beans.	Waste.	Beans.	Straw.	Waste.
	Grams.	*Grams.*	*Grams.*	*Grams.*	*Grams.*
Induction stream	2,040	3,670	696.5	1,570	614.8
5 Meidinger elements	2,410	4,320	...	...	...
4 Meidinger elements	...	...	607	1,810	490
Copper-zinc stream	2,190	4,020	465	1,380	497
Without electricity	2,220	4,000	584.2	1,330	602.7

Table showing the yield of potatoes (16 plants).

Description.	1886 (sown April 30, harvested September 27).			1887 (sown April 22, harvested September 26).		
	Number.	Weight.	Average weight of bulb.	Number.	Weight.	Average weight of bulb.
		Grams.	*Grams.*		*Grams.*	*Grams.*
Induction stream	181	6,400	35.3	202	8,350	41.3
5 Meidinger elements	163	4,650	28.5	....	....	....
4 Meidinger elements	....	....	....	193	8,190	42.4
Copper-zinc stream	187	6,670	35.7	234	8,290	38.1
Without electricity	190	6,620	34.8	241	8,410	34.9

Table showing the yield of beets (25 plants to section).

Description.	1886 (sown April 30, harvested October 1).		1887 (sown April 22, harvested October 1).	
	Roots.	Leaves.	Roots.	Leaves.
	Grams.	*Grams.*	*Grams.*	*Grams.*
Induction stream	23,400	8,550	19,640	7,260
5 Meidinger elements	24,420	7,200	....	....
4 Meidinger elements	....	....	17,650	5,750
Copper-zinc stream	29,400	8,650	16,320	7,120
Without electricity	28,100	9,200	18,900	6,600

Table showing the yield of cabbage turnips ("Kohlrüben"), 25 plants in 1886 and 16 plants in 1887.

Description.	1886 (sown April 30, harvested October 1).		1887 (sown April 22, harvested October 1).	
	Roots.	Leaves.	Roots.	Leaves.
	Grams.	*Grams.*	*Grams.*	*Grams.*
Induction stream	22,250	5,810	17,850	5,700
5 Meidinger elements	18,080	5,080	....	....
4 Meidinger elements	....	....	18,270	5,010
Copper-zinc stream	20,800	5,740	19,660	5,960
Without electricity	21,520	6,350	18,460	5,660

Table showing the yield of Indian corn in 1887 (sown May 8, harvested October 6), 16 plants to each section.

Description.	Number of cobs.	Corn.	Straw.	Waste.
		Grams.	*Grams.*	*Grams.*
Induction stream	44	1,962.8	5,770	2,171
4 Meidinger elements	36	1,923.6	4,270	1,844
Copper-zinc stream	42	2,072.9	5,120	1,733
Without electricity	37	1,913.6	3,936	1,722

Convinced by the results obtained from these experiments that the direct influence of electricity upon plant life was at best negative, and in most cases harmful, Prof. Wollny next turned his attention to an investigation of the indirect effects, *i. e.*, the decomposition of the organic and inorganic substances of the soil. A given quantity of soil, selected with due care, was put into U-shaped glass tubes and subjected to various complicated processes. The proportion of carbonic acid generated in all the tubes, whether electrized or not, was well-nigh constant and pointed to the conclusion that the organic properties of the soil were in no way affected by the induction or galvanic stream. The experiment was continued long enough to furnish data with which to generalize.

So, too, with regard to the solubility of mineral properties, the tests made showed very little variation. The results are less reliable, because of the difficulties surrounding the experiment. The soil was put into glass cylinders, and, after the conclusion of the experiment, upon analysis of 1,000 parts of dry soil, the following proportions were found to be soluble:

Description.	Kali.	Ammonia.	Phosphoric acid.	Spirits of niter.
Electrized	0.040	0.006	0.008	0.088
Nonelectrized	0.035	0.010	0.025	0.077

To sum up, then, the question of the propitious or unpropitious influence of the induction or galvanic stream upon plant life has found in this country, up to the present moment, no real practical solution; nor is one believed to be easily possible. While it is true that some few isolated experiments have been highly favorable to electricity, those conducted on the most extensive scale have resulted in very indifferent success. For the rest, it is evident that the obstacles in the way of locating with any exactness the point where the favorable influence stops and the unfavorable begins are too great, and a practical regulation of the current is scarcely to be hoped for.

THE INFLUENCE OF ELECTRIC LIGHT UPON VEGETATION.

This particular phase of the question under discussion has been but comparatively little investigated. This is due to several causes. First of all, as long as electric light could only be obtained by aid of strong batteries the entailed costs were too high to render experimenting practicable. With the discovery and perfection of the dynamo-electric machines, supplying light at a relatively trifling cost, came the first satisfactory tests. Of the experiments made in recent years, those of C. W. Siemens in 1880 deserve special mention.

He first selected two electric bow lamps of 4,000-candle power, fed by a dynamo machine, which was in turn driven by a high-pressure steam engine of 6-horse power. One of the lamps was placed in a glass house whose cubic contents were 2,318 feet; the other was placed at a height of from 12 to 14 feet over a hothouse of like size. The inside lamp was fitted with a reflector which threw the rays directly upon the plants, while the outside lamp, on the other hand, was provided with a transparent shade. The experiment began on October 23, 1880, and was continued until May 7, 1881. Sundays excepted, the light was turned on at 6 o'clock in the evening (5 o'clock during the shortest days) and kept up until daybreak. The temperature of the two houses was about 15° Celsius. A large number of vegetables and flowers were planted and observations taken. It was soon discovered that the influence of the outside light was beneficial, while the plants under the rays of the naked light showed a wilted appearance.

Suspecting that the combustible products of the light might exercise a dwarfing influence, the experimenter sought to remove this difficulty. By the help of an engine, which also pumped in currents of fresh air, clouds of steam were introduced into the hothouse between the plants and light. This device proved to be a step in the right direction, though it became eventually necessary to provide the lamp with a shade. This last served at once a double purpose, viz, it diverted the combustible products and supplied a shade between the plants and light.

In this connection, it was most instructive to watch the workings of the last-mentioned contrivance. If the shade was so placed as to protect only a part of the plants, the line of demarcation showed itself very plainly on the leaves—even after a single night. Those plants at a distance of from 9 to 10 feet from the naked light were distinctly wilted, while those under the shade of a thin glass presented a healthy appearance. This line of difference could even be detected on single leaves. Young stalks showed the injurious effect of naked light at a distance of 20 feet.

Here was clearly a question of the absorption of certain kinds of rays through glass. As electric light is rich in invisible, frangible rays which are capable of being mostly absorbed through shaded glass, Siemens concluded that these rays were especially destructive to the cells. To ascertain this more accurately, an experiment was undertaken. The soil of a hothouse was sown with plants of quick growth and in parcels at equal distance from the light. The first parcel was exposed to the naked light; the second was covered with thin glass, the third with yellow glass, the fourth and fifth with red and blue, respectively. The growth was carefully observed daily and the following facts reported:

The plants under the thin glass showed a strong and healthy appearance. Next came the plants under the yellow glass, although the color and thickness of the stalks suffered considerable by contrast. The plants under the red glass had a feeble growth and yellow leaves, and those under the blue glass were still more sickly. Finally, the plants of the exposed parcel showed a stunted growth, with leaves very dark and partly wilted. Throughout the entire experiment care was taken to provide during the day a suffused daylight and a sufficient air circulation.

By a natural process of elimination, Siemens next turned his attention to experimenting with a lamp with a thin glass shade. He noted that peas sown at the end of October, under the influence of the electric light (discontinued, as before, on Sundays alone), bore ripe fruit on February 16. Raspberries transplanted into the hothouse on December 16 ripened March 1; and strawberries set out at the same time bore fruit of a superior taste and color on February 14. Grapes of vines budding on December 26 ripened on March 26, but were unusually sour in taste. Wheat, barley, and oats shot up with surprising rapidity, but did not ripen. After reaching the length of about 12 inches, they began to wither and die. More favorable were the results of the attempt with the same grains and the light in the open air. The sowing took place on January 6, but the germination was slow by reason of the snow and frost. With the advent of milder weather, however, a rapid growth took place, and the fruit ripened at the end of June. That plants grown under the influence of electric light bring forth fruit which can be successfully used for seed purposes was demonstrated by an experiment with peas. Peas gathered on February 16 were planted on February 18. They germinated a few days later and were healthy in appearance.

Still another interesting series of experiments was conducted by P. P. Dehérain at the time of the Electrical Exposition in Paris in 1881. The plants were grouped into five distinct sections. In the first there was electric light day and night; in the second a diffused and weak daylight, with electric light at night. The plants in the third section were in the open air, exposed to a strong natural light during the day, with electric light at night. In the fourth section there was the weak light of the exhibition building during the day and entire darkness at night. The plants of the fifth group were in the open air and left to their normal growth.

The damaging effects of a light of about 2,000-candle power began to be clearly evident in the majority of cases at the end of seven days. This was especially true in the division having the electric light day and night. Some plants lost their leaves entirely and others had a wilted appearance. Most curious was the influence of the light upon the *Syringa vulgaris*. The leaves directly exposed turned black, while those underneath, protected by others above them, kept their fresh green color. The same phenomena were noticeable in a less marked degree with the azalias and chrysanthemums. An experiment with the blackened leaves showed that the epidermis alone had been injured. The detrimental influence of the light was more marked with the old leaves than with the young ones. In some cases new leaves immediately replaced the old ones which had fallen off, and these showed greater powers of resistance. All the plants which received the electric light during the night were in some like respect damaged, though not in so marked a manner. It was clearly shown, however, by the results in groups two and four, that those plants receiving weak daylight and electric light at night were in much healthier condition than those receiving the same light during the day, but left to the darkness at night.

Further, Dehérain undertook to discover to what extent the electric light decomposed carbonic acid. It was demonstrated that the light possessed this power, but in a degree much inferior to the sun. On a favorable summer day the quantity of oxygen collected in one hour equaled that gathered by the aid of the electric light in several days.

Satisfied that the direct rays exercised a harmful influence, Dehérain next experimented with shade lamps. Here, too, the plants developed unnaturally. Of a large number of varieties, barley alone ripened. The causes of this unfavorable influence were ascribed to the fact that the light was too weak to assimilate the carbon generated by the carbonic acid and too feeble to have the required effect upon transpiration.

These tests satisfied the experimenter that electric light, even under the best conditions, could be used with but relatively small returns, and this, too, only in those regions where the water power or fuel could be furnished at a very low rate. For those plants receiving a strong sunlight during the day the light might be successfully employed at night during the period of most vigorous growth, *i. e.*, from germination to blossoming.

To repeat, then, in conclusion, what was stated in the introduction, it will be seen from the foregoing summary that no common or satisfactory solution of the problem has been reached. The utility of electricity in plant culture must still be regarded as doubtful. The literature upon the general subject is not extensive. Outside of the sources already quoted, there has recently appeared elsewhere: *

A. Bruttini. Effect of Electricity upon Plants. Le Stazioni sperimentali agrarie italiane. Vol. XVIII, p. 58.

A. Aloi. The Influence of Atmospheric Electricity upon Plant Vegetation. Malpighia. T. V., 1891, p. 116.

L. H. Bailey. Influence of Electric Light upon Hothouse Plants. Agricultural Experiment Station, Cornell University, Ithaca, N. Y., 1891.

L. H. Bailey. Second Report upon Electro-Horticulture. *Ibid.*, 1892. Bulletin No. 42.

MACHINERY AND IMPLEMENTS.

As to the use of electricity as a power in the propulsion of farm machinery and implements, it is unknown in this country. It has certainly not been permanently adopted in any single instance, nor have I been able to hear of any experiments in this direction. An explanation of this would be easily found in the well-known lack of water power in Germany, even if no other obstacles were assumed to exist.

ALBERT H. WASHBURN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Magdeburg, November 28, 1892.

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* The titles are translated from the German, and so, perhaps, are only approximately exact.

COLOGNE.

REPORT BY CONSUL WAMER.

At present electricity is used in this consular district for lighting purposes only. For several years there existed some small private plants by which a few warehouses were lighted, and a hotel or two produced their own current for lighting their rooms. Some of these plants have already disappeared, and the said houses have connected their wires with the network of the municipal electric station. It is believed by the municipal authorities that the rest of these private plants will, in a short time, feed their lamps with current from the city's central station.

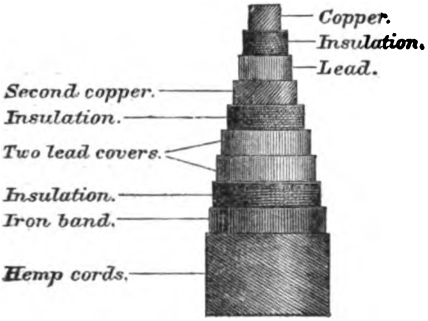
The system used in the city's electric works is the alternating current, with a pressure or tension of 2,000 volts, transformers or converters being placed at the consumers' houses, which transform the high-pressure current down to the low pressure of 72 volts, at which it is used for lighting purposes.

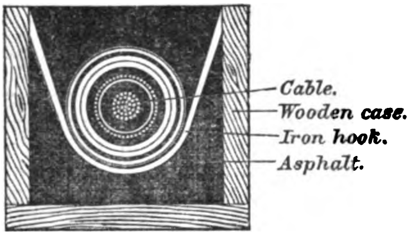
The central station building is located at the south end of the town and directly alongside of the waterworks. The works were built by the city of Cologne in 1885.

The engine room of the central station contains at present two 500-horse-power compound engines and one of 150-horse power for service during the daytime. The compound engines are worked with condensation and make 85 revolutions per minute. They bear upon their shafts and between the two cylinders the large alternate-current dynamos and their small exciters. The alternators are of the well-known Zipernowsky type, and possess 72 poles, thus making 72 × 85 = 6,000 alternations per minute, or 100 in a second. They can be worked together in a parallel upon the network; and with the third large engine of 500-horse power they will be able to feed the 20,000 16-candle-power incandescent lamps for which the station has been projected.

The boilers are water tubular ones, built for a pressure of 10 atmospheres, but used only at 6 atmospheres. An interesting feature is that the two boilers in service also supply steam to the pumping machinery of the waterworks, to which they are connected by a common system of steam pipes. This is an economical way of producing the necessary steam, and it is made possible by the fact that during the summer little light is used during the day, but very much water must be supplied, while during the night the consumption of water is small and that of light is large. In winter, of course, there are either more boilers at work or each station produces the necessary steam for its own electric or pumping machines.

The capacity of the network of wires is 20,000 burning lamps of 16-candle power each. The cables used are iron-bound, lead-covered, concentric cables of various diameters and cross sections, as is seen in the annexed figure.


Copper.
Insulation.
Lead.
Second copper.
Insulation.
Two lead covers.
Insulation.
Iron band.
Hemp cords.


Cable.
Wooden case.
Iron hook.
Asphalt.

CABLE.

The concentric arrangement was chosen in order to avoid any disturbances which might come from the alternating current to the telephone network, for which earth is used for return current. The imperial post-office is preparing to put down underground telephone cables, as their trials have shown that no disturbance arises from the neighborhood of the concentric cables of the electric central station. The total length of the cables is 20,000 meters. From the central station there are three feeders, each of a sectional area of 220 square millimeters for each conductor, which are connected with five mains, with a cross section of 185 square millimeters for each conductor. The mains are connected with and joined by distributing leads forming a network.

By means of stations, parts of the cable which need repair or where the connections for a new consumer must be made may be disconnected from the rest so that the work may be performed without any risk to the lives of the workmen. The disconnecting stations have been placed in several public buildings or in small barracks near them, and can, of course, be opened only by the officials. The cables are run through the streets below the sidewalks at a depth of 0.75 meter. They are placed in wooden boxes at lengths of 3 to 4 meters. The heavy cable is held in position by iron hooks, and the whole of the wooden box is filled with molten asphalt. In order to avoid any mechanical damage, the whole mass in the box and the box itself are covered with layers of bricks under the street pavements. The connections from the cable to a house are made by T-shaped joints, and the transformers and meters are placed in the cellars of the houses.

The total cost for erecting the works for 20,000 lamps was $460,000 (1,850,000 marks), which was distributed as follows:

Buildings	$91,250
Boilers	32,500
Engines, dynamos, and switching devices	161,250
Network and transformers	152,250
Meters	10,000
Supervision, plans, etc	12,750
Total	460,000

The number of lamps connected on the 1st of June last was 10,806 glowlamps and 323 arc lamps.

Nearly every factory of any importance in this consular district is lighted by electricity.

The cost of the light to the consumers, as reckoned by the city, is about 1 cent per hour for each 16-candle-power glowlamp, with a discount ranging from 5 to 50 per cent, according to the number of lamps in use and their time of burning.

WILLIAM D. WAMER,
Consul.

UNITED STATES CONSULATE,
Cologne, August 15, 1892.

CREFELD.

REPORT BY CONSUL BLAKE.

Electricity is not in use in this district as a power for the propulsion of farm machinery and implements or in the propagation and growth of plants. Farmers are very reluctant to make any change in the manner or method of the cultivation of their land. They still use the same kind of plow, harrow, and other farming implements that have been in use for many years.

A short time since I visited a farm near Crefeld. I was informed that about 1,000 acres were under cultivation, and noticed, among the farming implements, a new self-binder, which, however, was not being used. Having inquired into the cause, I learned that, while its work was satisfactory, it was more expensive to cut their grain with the self-binder than in the old-fashioned way. The owner of the farm then showed me how their harvesting was done. There were 10 men employed in cutting the grain, using a short scythe about 2 feet long attached to a straight stick about 3 feet in length. This is used in the right hand, while a stick is used by the left which is about 3 feet long, with a piece of iron attached to the end, crooked so as to draw the grain into the sickle. Then there were 10 women to bind and stack the grain. The men received 36 cents and the women 25 cents per day for their labor. The owner said it was cheaper to harvest their grain in the above manner than with a self-binder, and for that reason it was laid aside.

While many farmers thrash their grain with the modern thrashing machine, some still use the flail. The good, old-fashioned ways of their fathers and forefathers are good enough for them. Should they adopt the modern labor-saving machines and implements, what would become of the large surplus of laborers?

The propagation and growth of plants by the use of electricity is not known among the farmers.

EVANS BLAKE,
Consul.

UNITED STATES CONSULATE,
Crefeld, September 15, 1892.

DRESDEN.

REPORT BY CONSUL-GENERAL PALMER.

I have the honor to report, in reply to circular of the Department regarding the use of electricity as a power in the propulsion of farm machinery and implements and in the propagation and growth of plants, that electricity is not used for either purpose within the limits of this consulate-general.

There was an attempt made a short time since to use electricity for the propagation of roses, but it was abandoned as too expensive.

AULICK PALMER,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Dresden, October 17, 1892.

FRANKFORT.

REPORT BY CONSUL-GENERAL MASON.

Since receiving the Department circular dated April 21, I have investigated with some care the question of the use of electricity as a power in the propulsion of farm machinery and implements and in the propagation and growth of plants.

I find that there is in this district, and, so far as I can ascertain, in southern and western Germany, no instance in which electricity has been practically used as a motive force in agriculture. I am not able to learn that any serious experiments in that direction have been made, but there is a project under consideration to erect a plant at a waterfall in the vicinity of Lake Constance to generate electricity on a large scale by water power and distribute it to the neighboring farms to be used for thrashing, pumping, sawing wood, and other forms of agricultural labor. But this scheme is as yet only incipient, and it will be a long time before it can come to any practical result.

No experiments have been made, so far as can be ascertained, in the use of electricity for propagating plants, it being understood by electricians here that the essays in that direction which have been made in St. Petersburg have been only moderately successful.

The general feeling among practical electricians here is that the uses of electricity are already sufficiently varied and diffuse, and that the economical success of such applications will only be compromised and rendered uncertain by attempts to apply it to other purposes wherein its utility would be at least experimental. Agricultural and industrial labor are, moreover, so cheap and abundant in Germany that there is very little incentive to experiments with new and costly apparatus.

FRANK H. MASON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Frankfort, August 4, 1892.

MANNHEIM.

REPORT BY CONSUL WINTER.

The application and growth of electric-motor plants as a power in the propulsion of farm machinery and implements in this consular district has met with no encouragement or success thus far; and, indeed, the application of steam as a motive power is not yet in use as a power in the propulsion of farm machinery and farm implements in the grand duchy of Baden, with the exception of steam thrashers of grain.

The only use of electricity as a motive power in this district is that produced by the electric-motor plants in furnishing electric lights for railway stations and in some public and private buildings in Mannheim, Carlsruhe, and Heidelberg; but as yet it is not applied for lighting up the streets of these cities. The application and use of electricity as a motive power, however, is certainly well understood and appreciated by the educated and progressive people of this consular district.

JNO. F. WINTER,
Consul.

UNITED STATES CONSULATE,
Mannheim, July 12, 1892.

GREAT BRITAIN.

BIRMINGHAM.

REPORT BY VICE-CONSUL BURTON.

There is practically no application of electricity to farm implements in this district. I am informed that, as a commercial enterprise, it could be worked cheaply where they have water power, but that where steam would be necessary it is too expensive.

At the royal agricultural show, Warwick, England, held in June of this year, a thrashing machine was exhibited to which was fixed the electric light, the object of which was to enable the thrashing to be done at any time.

As to the application of electricity in the growth of plants, with the exception of a few experiments by Mr. Chamberlain, there has been nothing done locally; but some interesting experiments on the effect of the electric light on the growth of plants were carried out by the late Sir William Siemens at his country seat, Sherwood, and the results noticed were embodied in a paper which he communicated to the Society of Telegraph Engineers on the 3d of June, 1880. This paper I have the honor to send herewith, and to direct your attention to an article headed "The effect of dynamo-electric energy upon horticulture as a promoter of the chemical changes by which the plant takes its chief ingredients of food from the atmosphere."

F. M. BURTON,
Vice-Consul.

UNITED STATES CONSULATE,
Birmingham, September 25, 1892.

THE EFFECT OF DYNAMO-ELECTRIC ENERGY UPON HORTICULTURE, AS A PROMOTER OF THE CHEMICAL CHANGES BY WHICH THE PLANT TAKES ITS CHIEF INGREDIENTS OF FOOD FROM THE ATMOSPHERE.

[Inclosure in Vice-Consul Burton's report.]

A consideration of the extremely elevated temperature of, and of the effects produced in experimenting with, powerful electric arcs, such as causing blistering of the skin and a feeling akin to sunstroke in the incautious observer, has led me to reflect whether the action of the arc was not analogous to that of the sun in its effect also upon vegetable life. The solar ray, in falling upon the leaf of a plant, not only produces the coloring matter called chlorophyll, but effects within the vegetable cell decomposition of the carbonic acid and aqueous vapor absorbed from the atmosphere for the formation of starch and woody fiber.

I mentioned my views on this subject to several botanists, from whom I received some encouragement to put the question to practical test, which I accordingly did, commencing in the early portion of the present year, at my country residence of Sherwood, near Tunbridge Wells.

The apparatus I use consists—

(1) Of a vertical Siemens dynamo machine, weighing 56 kilograms, with a resistance of 0.717 unit on the electro-magnets. This machine makes one thousand revolutions a minute; it takes 2-horse power to drive it and develops a current of from 25 to 27 webers of an intensity of 70 volts.

(2) A regulator or lamp, constructed for continuous currents, with two carbon electrodes of 12 and 10 millimeters diameter, respectively. The light produced is equal to 1,400 candles.

(3) A 3-horse-power Otto gas engine as motor.

My object was to ascertain by experiment whether electric light affected the growth of plants. For this purpose I placed in the open air a regulator contained in a lamp having a metallic reflector about 2 meters above the roof of a sunk melon house. Several pots were provided and planted with quick-growing seeds and plants, such as mustard, carrots, melons, etc. The plants were arranged to be brought at suitable intervals, without moving them, under the influence of daylight and electric light, both falling upon them at approximately the same angle. The pots were divided into four groups or series. One group was kept entirely in the dark, another was exposed to the influence of electric light only, the third to the influence of daylight only, and the fourth was exposed successively to both day and electric light.

In this first trial the electric light was supplied during six hours, from 5 to 11 each evening, the plants being left in darkness the rest of the night, but in experiments hereafter to be referred to the electric light was kept on during the whole night.

In every instance the differences of effect were unmistakable. The plants kept in the dark were pale yellow, thin in the stalk, and soon died. Those exposed to electric light only showed a light-green leaf and had sufficient vigor to survive. Those exposed to daylight only were of a darker color and greater vigor. Those exposed to both sources of light evinced a decided superiority in vigor over the rest, and the color of the leaf was a dark, rich green.

It must be remembered that in this trial of electric against solar light the period of exposure was in favor of the latter in the proportion of nearly 2 to 1, but, after making every allowance, the average daylight in these latitudes in the early portion of the year appears to have about twice the effect of electric light. It was evident, however, that the electric arc was not so placed as to give out its light to the greatest advantage. The nights were cold, and the plants under experiment were for the most part of a character to require a hot, moist atmosphere; the glass thus became covered very thickly with moisture, obstructing thereby the action of the light, besides which the electric light had to traverse the glass of its own lamp. Notwithstanding these drawbacks, the electric light clearly formed chlorophyll and its derivatives in the plants. But it was, besides, interesting to observe the mechanical action that took place, for the mustard seed stem, when placed obliquely, turned completely toward the light in the course of two or three hours; and the stems of cucumber and melon plants also did so, though more slowly. The cucumber and melon plants which have been exposed to both day and electric light have made great progress, and my gardener tells me that he could not have brought on the latter without the aid of the electric light during the early winter. These preliminary trials go to prove that electric light can be called to the aid of solar light by using it outside of greenhouses, but the loss of effect in such cases is considerable.

I next directed my observations to the effect of electric light upon plants when both were placed in the same inclosure. A portion of the melon house already referred to was completely darkened with a covering of thick matting and was whitewashed inside. The electric lamp was placed over the entrance door, and shelves were arranged in a horseshoe form, with pots containing the plants to be experimented upon, the plants being placed at distances from the source of light varying from 0.5 to 2.3 meters. The first time the naked electric light was tried in this manner some of the plants, and especially some melon and cucumber plants from 20 to 40 centimeters in height, less than a meter distant from the lamp, suffered, the leaves nearest the lamp turning up at the edges and presenting a scorched appearance. In the later experiments the stands were so arranged that the distance of the plants from the light was from 1.5 to 2.3 meters. The plants were divided into three groups; one group was exposed only to daylight, a second group received only electric light during eleven hours of the night, being in darkness during the day, and the third group had the benefit of eleven hours day and eleven hours electric light. These experiments were continued during four consecutive days and nights, and the results are very striking and decisive as regards the effect upon such quick-growing plants as mustard, carrots, etc. The trial was unsatisfactory in this one respect, that during the third night the gas engine working the dynamo machine came to a standstill, owing to a stoppage in one of the gas channels, and the electric light was only applied half the night. Notwithstanding this drawback, the plants were evidently benefited by the electric light. The plants that had only been exposed to daylight (with a fair proportion of sunlight) presented the usual healthy green appearance; those exposed to electric light alone were of a somewhat lighter hue than those exposed to daylight, except in one instance, when the reverse was the case; while the plants that had the benefit of both day and electric light far surpassed the others in darkness of green and general vigor. A fear had been expressed that the melon and cucumber plants which had been scorched by the electric light on the first evening would droop or die under continued exposure to that agency; but they were replaced at a distance from the light exceeding 2 meters, and they have all shown signs of recovery. A pot of tulip buds was placed in this electric stove, and the flowers opened completely after an exposure of two hours.

Another object I had in view in this experiment was to observe whether the plants were injured by carbonic acid and the nitrogenous compounds observed by Prof. Dewar to be produced within the electric arc. All continuous access of air into the stove was stopped, and, in order to prevent excessive accumulation of heat, the stovepipes were thickly covered over with matting and wet leaves. But, although the access of stove heat was thus stopped, the temperature of the house continued through the night at 72° F., proving that the electric light furnished not only light, but sufficient heat also. No injurious effect was observed on the plants from the want of ventilation, and it is probable that the supply of carbonic acid given off by the complete combustion of the carbon electrodes at high temperature and under the influence of an excess of oxygen sustained their vital functions. If nitrogenous compounds were produced in large quantities, it is likely the plants would have been injured; but they could not be perceived by their smell in the stove, when all ventilators were closed, and no injurious effects on the plants had been observed.

These experiments are instructive in proving that electric light alone promotes vegetation and the important fact that diurnal repose is unnecessary to plant life, although the experiments have perhaps not lasted long enough to furnish that proof absolutely. We may argue, however, from analogy that such repose is not necessary, as crops grow and ripen very quickly in northern latitudes, where the summer is only two months in length, during which period the sun is almost altogether above the horizon.

I next removed the electric light into a palm house constructed of framed glass (8.6 by 14.4 by 4.42 meters). In its center a banana palm and a few other small palms are planted, while a considerable variety of flowering plants are placed around the interior. The electric light was placed at the south corner of the house as high as practicable, that its rays might fall upon the plants in the same direction and at the same angle as those of the sun during the middle of the day. A metallic reflector was placed behind the lamp, so as to utilize all the rays as far as possible. Some young vines are planted along the eastern side of the house. Three pots of nectarines just on the bud were placed on the floor at different distances from the light, and also some roses, geraniums, orchids, etc. The temperature of the house was maintained at 65° F., and the electric lamp was kept alight from 5 p. m. to 6 a. m. for one week from February 18 to February 24, excepting Sunday night. The period of the trial was hardly sufficient to produce very striking effects, but the plants remained healthy. The vine nearest the light made most progress, and the same statement could be made regarding the nectarines and roses. Other plants, such as geraniums, continued to exhibit a vigorous appearance, and the electric light appeared to impart the vitality necessary to prevent the plants being injured through excessive temperature. This experiment is important in showing that the electric light, when put into conservatories, improves the appearance and growth of the plants. The leaves become darker, the plants more vigorous, and the coloring of the flowers brighter; but a further period of time is necessary to establish this observation absolutely. The effects produced by electric light in conservatories are very striking, owing to the clearer definition of form and color due thereto.

I decided in the next place to try the effect of the electric light upon plants in the open air and under glass at the same time. The regulator was returned to its first position, 2 meters above the ground, with a sunken melon house on the one side and a sunken house containing roses, lilies, strawberries, and a variety of other plants on the other. Upon the ground between these were placed boxes sown with early vegetables, and protecting walls were erected across the openings of the passage between the two houses, in order to protect the plants from cold winds. The effects could thus be simultaneously observed upon the melons and cucumbers in the one house, upon the roses, strawberries, etc., at a lower temperature in the other, and upon the early vegetables unprovided with covering.

That growth was promoted under all these varying circumstances I proved clearly by shading a portion of the plants both under glass and in the open air from the electric light, without removing them from their position of equal temperature, and exposing them to solar light during the daytime. Upon flowering plants the effects are very striking, and the electric light is apparently more efficacious to bring them forward than daylight in winter. Although the quantity of heat given off by the electric light is not so great in amount as that from burning gas, yet the heat rays from the arc counteract that loss of heat from the leaves by radiation into space, which causes hoarfrost on a clear night. An experiment made on a night of hoarfrost clearly proved that, although the temperature on the ground did not differ materially within the range of the electric light and beyond it, the radiant effect of the light was such as to prevent frost entirely within its range. For this reason I anticipate the useful application of electric light in front of fruit walls, in orchards, and in kitchen gardens to save the fruit bud at the time of setting.

Considering the evident power of the electric light to form chlorophyll, there seemed reason to suppose that its action would also, in the case of ripening fruit, resemble that of the sun, and that saccharine matter, and more especially the aromatic constituents, would be produced. To test this opinion practically, several plants of early strawberries in pots were placed, as in the last experiment, in two groups, the one being subjected to daylight only and the other to solar light during the day and to electric light at night. Both groups were placed under glass at temperatures varying from 65° to 70° F., those that received daylight only being shielded from the effect of the electric light.

At the commencement of the experiment the strawberry plants were partly setting fruit and partly in bloom. After a week the fruit on the plants exposed to electric light had swelled very much more than that on the others, some of the berries showing signs of ripening. The experiment was interrupted for two nights at this stage, and when the electric light was resumed very rapid progress was observable; and after four days' continuous exposure to both day and electric light the majority of the berries had become ripe and showed a rich red color, while the fruit on the plants that had been exposed to daylight only scarcely showed even a sign of redness.

Melons that have been brought forward with the aid of the electric light also clearly prove its advantageous effects in promoting the setting of fruit, the process of ripening, and the production of aroma.

These experiments go to prove that electric light is efficacious in promoting the formation of fruit rich in bloom and aroma, and, if these results should be confirmed, the horticulturist will be able to make himself practically independent of solar light for producing a high quality of fruit at all seasons of the year.

Although I have shown that a maximum beneficial result on vegetation is produced at a distance of 2 meters with a lamp of 1,400-candle power, the influence is very marked upon plants at greater distances. This action at a distance was proved by the condition of three melon plants situated towards the back of the house, which throve remarkably well for about a fortnight that the electric light was in front of the house at a distance of from 5 to 6 meters from the plants. After the electric light was removed in front of the other end of the same house and the plants in question were deprived of its influence, they continued their growth, but have shown a very decided falling off in vigor.

An important consideration is the cost of electro-horticulture. This depends upon the cost of the fuel or other source of energy and upon the scale of application. To work one electric lamp only with a small steam or gas engine is expensive, both as regards fuel and cost of attendance. If steam has to be resorted to, it is important to employ an engine of sufficient size to produce economical results per horse power of energy expended, and the electric arc should be of sufficient brilliancy to give a good effect for the power employed. Experience in electric illumination has established a form and size of machine both convenient and suitable for the attainment of economical results, viz, the medium dynamo-electric machine, which, if applied to a suitable regulator, produces fully 6,000-candle power of diffused light with an expenditure of 4-horse power. The experiments already referred to show that the most efficient height at which to place the naked electric arc of 1,400-candle power is about 2 meters. By using a metallic reflector the major portion of the upward rays may be thrown down upon the surface to be illuminated, and that height may be taken at 3 meters. If an electric arc of 6,000 candles was employed, the height would be—

$$\frac{\sqrt{6{,}000}}{\sqrt{1{,}400}} \times 3 = 6.2 \text{ meters,}$$

at which such an electric light should be fixed. In operating upon an extended surface, several lamps should be so placed as to make the effect over it tolerably uniform. This would be so if the radiating centers were placed at distances apart equal to double their height above the ground; for a square foot of surface midway between them would receive from each center half the number of rays falling upon such a surface immediately below a center. A plant at the intermediate point would, however, have the advantage of presenting a larger leaf surface to both sources of light; and, to compensate for this advantage, the light centers may be placed yet further apart, say at distances equal to three times their elevation, or 18 meters. Nine lights so placed would suffice for an area 54 meters square, or about three-quarters of an acre. If a high fruit wall were to inclose this space, this will also get the full benefit of electric radiation and would serve at the same time to protect the plants from winds. By subdividing the area under forced cultivation by vertical partitions of glass, as has been done with excellent results by Sir William Armstrong, protection is insured against injury from this latter cause.

There would be required to maintain this radiant action a 9 × 4 = 36 horse-power engine, involving the consumption of 36 × 2½ = 90 pounds of fuel per hour, which, for a night of twelve hours, with 40 pounds for getting up steam, amounts to half a ton, costing, at 16*s.* a ton, 8*s.* a night. This does not include, however, the cost of carbons or of an attendant, which would probably amount to as much more, making a total of 16*s.* If, however, an engine could be utilized doing other descriptions of work during the day, the cost of steam power and attendance for the night work only would be considerably reduced.

I have assumed in the calculation just given the use of fuel to produce mechanical energy but the question will assume a totally different aspect if natural sources of power, such as waterfalls, can be rendered available within a short distance. The cost of power will in such case be almost entirely saved and that of attendance greatly diminished, and it seems probable that under such circumstances electro-horticulture may be carried out with considerable advantage.

In reply to questions that have been frequently asked regarding the cost of maintaining an experimental electric light of 1,400-candle power, such as I have used in these experiments, I may state that the 3-horse-power Otto gas engine employed in driving the dynamo machine consumes nearly 900 cubic feet of gas during the night of twelve hours, or 75 cubic feet an hour, which, at 3*s.* 6*d.* per 1,000 cubic feet, represents, with the carbons, a cost of 5*d.* an hour. This, however, does not include superintendence or incidental expenses, the amount of which must depend upon the circumstances of each case.

The experiments furnish proof that no particular skill is required in the management of the electrical apparatus, as the gas engine, dynamo machine, and regulator have been under the sole management of my head gardener, Mr. D. Buchanan, and of his son, an assistant gardener. The regulator only requires the replacement of carbons every four or five hours, which period may easily be extended to twelve hours by a slight modification of the lamp.

I am led to the following conclusions as the result of my experiments:

(1) That electric light is both efficacious in producing chlorophyll in the leaves of plants and in promoting growth.

(2) That a light center equal to 1,400 candles, placed at a distance of 2 meters from growing plants, appears to be equal in effect to average daylight in February; but more economical effects can be attained by more powerful light centers.

(3) That carbonic acid and the nitrogenous compounds generated in diminutive quantities in the electric arc produce no sensible deleterious effects upon plants enclosed in the same space.

(4) That plants do not appear to require a period of rest during the twenty-four hours of the day, but make increased and vigorous progress if subjected during daytime to sunlight and during the night to electric light.

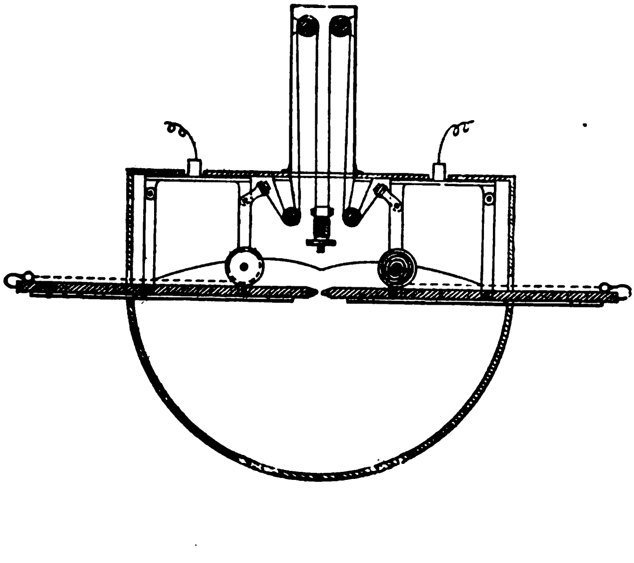
(5) That the radiation of heat from powerful electric arcs can be made available to counteract the effect of night frost.

(6) That, while under the influence of electric light, plants can sustain increased stove heat without collapsing, a circumstance favorable to forcing by electric light.

(7) That the light is efficacious in hastening the development of flowers and of fruit. The flowers produced by its aid are remarkable for intense coloring, and the fruit both for bloom and aroma, without apparent augmentation of the saccharine constituents.

(8) That the expense of electro-horticulture depends mainly upon the cost of mechanical energy, and is very moderate when natural sources of such energy, as waterfalls, can be made available.

Some observations made by Dr. Schübeler, of Christiania, to which my attention has been drawn, fully confirm the conclusion indicated by my experiments with electric light. Ac-



cording to Dr. Schübeler, plants are able to grow continuously; and when under the influence of continuous light they develop more brilliant flowers and larger and more aromatic fruit than when under the alternating influence of light and darkness.

The useful influence of the electric light in horticulture having been thus established, I have taken steps to test the principle upon a working scale. Natural sources, such as water power, not being available, I have had to resort to steam as the motive agent. With this object I have laid down a 6-horse-power horizontal engine, by Tangye Brothers, and a Cornish boiler, fitted with two Galloway tubes in the flue, close to the conservatories at Sherwood and at a distance of somewhat less than a quarter of a mile from the farm buildings. The power of this engine is sufficient to give motion to two dynamo machines capable of producing 12,000-candle power of light. The steam, after doing its work in the engine, will be made available as a heating agent for the hothouses; but, it having been found undesirable to pass such steam directly into the pipes leading to the houses, an intermediate tubular heater is used to effect the condensation of the steam and to communicate its latent heat to the water circulating through the ranges of pipes in the usual manner. The fires now necessary to maintain the heat of the circulating pipes are suppressed, and that below the steam boiler substituted, which, admitting of an arrangement more suitable for economical results, will, it is expected, require little or no additional expenditure of fuel beyond what has hitherto been necessary to work the stoves. The power required for the electric light can therefore, under the peculiar circumstances of the case, be obtained at a comparatively low cost during the time the electric light is needed. The stoves, however, will require firing during the daytime; and, in order to utilize the engine power when not required for electric lighting, arrangements will be made so that the machines for chaff and turnip cutting at the farm, and also some wood-cutting machinery, shall be worked by electric transmission of power, the current being derived from the same dynamo-electric machine which works the electric light during the night. By means of these arrangements the subject of electro-horticulture will be put during the ensuing winter to the test, not only of what can be accomplished by its aid, but as to the cost at which those effects may be obtained.

A question of considerable interest connected with this subject is that of determining which portion of the rays constituting white light is efficacious in producing chlorophyll, starch, and woody fiber and which in effecting the ripening of fruit. For this purpose arrangements are in preparation to distribute the spectrum of a powerful electric light in a darkened chamber over a series of similar plants exposed seriatim to the actinic, light-giving, and thermal portions of the spectrum. Some experiments have been made with solar light in this direction, but no very conclusive results could be obtained, because the short periods of time during which the solar spectrum can be maintained steadily in the same place is so short that the effects produced upon vegetation have not been of a sufficiently decided character; whereas, with the aid of electric light, the same spectrum may be kept on steadily for a series of days without intermission.

For this purpose, and for electro-horticulture generally, it is important to employ a lamp with its focus unchangeable in space and without obstruction to the rays of light falling downward. The lamp which I have designed for this purpose, and which has already been referred to in the paper read before the society by Mr. Alexander Siemens, is represented in the accompanying drawing (page 349).

The principal point of novelty in it consists in the mode of advancing the carbons, which, instead of being effected by clockwork (as has been the case hitherto in constructing regulators), is effected simply by the force of gravity or by spring power urging the carbons forward toward the point of meeting, in which forward motion each carbon is checked by a metallic abutment, in the form of a point or edge of copper or other metal of high conductivity, the exact position of which can be regulated by a screw.

This metallic ridge touches the carbons laterally at a distance of 10 to 15 millimeters from the luminous point, where the temperature of the carbon is sufficient to cause its gradual decomposition in contact with the atmosphere without being high enough to fuse or injure the metal.

In the lamp before you the carbons are contained in horizontal holders, suspended from the lamp frame by means of four suspension rods; a solenoid coil is placed vertically above the point of light, the iron core of which is connected to the suspension rods on either side by means of rods, whereby horizontal motion is applied to the metallic carbon-holders, tending to separate them when the current flowing through the solenoid coil diminishes and approaching the carbons when the current passing through the coil increases. The effect is that an increased resistance in the electric arc causes a shortening, and a decrease a lenthening, of the arc itself. In order to steady the action of this regulator, the iron core carries a piston, working freely up and down in a vertical cylinder, having a throttled aperature for the ingress and egress of atmospheric air above the piston. The two metallic holders are put into conductive connection with the two wires leading up from the dynamo-electric machine, and the regulating solenoid coil is connected to the two holders respectively, so that the current active in this coil is always proportionate to the potential between the two electrodes, which, by this arrangement, is made practically constant. If this lamp is worked by alternating currents, the two carbons are made equal in diameter; but, if worked by a continuous current, the carbon connected with the positive pole should be made larger than the one connected with the negative pole in the ratio of about 3 to 2.

Instead of the solenoid regulator, the steel tape regulator may be employed, which I described in a paper read before the Royal Society on the 16th of January, 1879, in reference to certain means of measuring and regulating electric currents. This thin strip or wire is in metallic connection at one end with one of the suspension rods connected with the positive pole and at the other with one of the suspension rods connected with the negative pole, being led up and down over pullies in order to produce a total resistance of from 20 to 30 ohms. The tension on this wire produced by balance weights prevents the carbon points from coming into contact with each other. Whenever the current is turned on, the iron strip becomes heated and elongates, allowing the carbons to approach each other. From the moment they touch the arc is formed, causing less current to pass through the iron strip or by-pass, which consequently contracts on cooling and causes the carbon poles to separate, thus effecting the proper regulation of the arc.

In its application to horticulture a metallic parabolic reflector of considerable diameter is placed over the luminous center, in order to reflect downwards all the rays of light and heat which would otherwise pass upward, an arrangement which may be advantageously carried out in these lamps as used for illumination when placed at a considerable elevation above the ground.

The horizontal carbon-holders may be made of considerable length, and one rod of carbon may be made to follow up the preceding one, in order to obtain a continuous action of the lamp; it is necessary, however, to join the one carbon to the succeeding one by drilling the ends and introducing a short piece of steel connecting wire between the two. The metallic connection between the carbon and the carbon-holder is effected by contact springs and levers, the latter of which may be so arranged that when, through some mistake, carbons have not been supplied to a lamp at the proper time, the contact lever, in tipping up, short-circuits the working current, causing the extinguishment of the lamp without stopping the working of other lamps within the same electrical circuit.

Further experiments have shown that the color of flowers and fruit subjected to continued electric light is much intensified. We have been able to bring strawberries to ripeness by means of the electric light fully a fortnight before the usual time, such fruit being remarkable for its color and aromatic flavor. But it seems that the formation of sugar is not dependent upon this continuous light, and I might almost suggest the idea that the formation of sugar is the very last action that goes on in fruit. After the fruit has formed, developed, and acquired its aromatic qualities, then the formation of sugar seems to step in, as though it was the first stage of decay. Several botanists of high standing (Prof. Cohen, of Leipsic, and others) have expressed the opinion that the growth of plants takes place chiefly at night; and there seems to be no doubt that during the night delicate and quick-growing plants, such as cucumbers and melons, make very considerable progress. But in that case they remain thin and yellow, whereas with continuous light they make less progress in length, but develop more in color, in breadth, and in vigor; so that the truth may lie between the two views—that for most rapid growth intermittent light and darkness may be necessary, but that for vigorous development and for the formation of fruit it is not desirable.

The experiments now in preparation will perhaps settle some of these points and will further show what can be done in this direction from a practical point of view.

Is it possible to make use of electric aid for growing plants and developing fruit that could be brought to the market? This is a mixed question. It depends, in the first place, upon the amount of effect that can be produced, and, in the second place, upon the cost. My opinion is that the result of experiments on a large scale will come out favorably as regards its application to high-class horticulture. By working a steam engine and using the waste steam to heat the water that circulates through the stoves, I believe that there will be very little extra consumption of fuel; and, if that view be realized, the expense of the electric light will not be great at all, and the steam engine could be used in the daytime for various other ordinary useful purposes.

Then, with regard to the spectrum experiments. It is an open question which portion of solar light is really efficacious in forming chlorophyll and which in promoting growth and in producing starch and fibrous matter. The difficulty in experimenting with solar light is obvious. Since the days of Joshua the sun has not been standing still, and the power of making it do so is beyond the skill of botanists; hence the difficulty of obtaining a standing spectrum by which to notice sensible effects produced from any portion of it. In this respect the electric light has every advantage, for, by placing an electric lamp in focus to produce a permanent spectrum, series of plants can be placed in different portions of it, and the various results noted for any required period.

GLASGOW.

REPORT BY CONSUL BROWN.

The use of electricity in agriculture is unheard of in this part of Scotland. Every person to whom I have addressed the inquiry appeared astonished at the suggestion of a possibility of such a thing. The fact is, electricity is but little used in this consular district. In this great city, the home of Lord Kelvin (Sir William Thomson), perhaps the most famous electrician in the world, the use of electricity has hardly commenced. Perhaps a half dozen public buildings and an equal number of stores and private houses (the house of Sir William Thomson included in the latter) are lighted with electricity, but I am not aware of its being used as a motive power in a single instance. There is some talk looking to its use as a motive power for street-car service, but I believe no definite plans are as yet formulated.

LEVI W. BROWN,
Consul.

UNITED STATES CONSULATE,
Glasgow, June 30, 1892.

LEEDS.

REPORT BY CONSUL WIGFALL.

So far as I am advised, the use of electricity as a power in the propulsion of farm machinery or in the propagation and growth of plants is not current in this district.

One of my informants reports inquiries from abroad for plowing tackle to be worked by electricity, and states his belief that something of the kind is doing in Manchester.

F. H. WIGFALL,
Consul.

UNITED STATES CONSULATE,
Leeds, June 27, 1892.

LONDON.

REPORT BY CONSUL-GENERAL NEW.

I have the honor to transmit herewith a clipping from the Times newspaper of July 25 last describing the opening of the Blythwood Electric Dairy, which has been built by Mr. Walter Gilbey at Stanstead, Essex, and all the machinery of which is worked by electricity. This is the only example of the use of electricity in connection with agriculture that has come under my notice.

JOHN C. NEW,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
London, September 28, 1892.

THE BLYTHWOOD ELECTRIC DAIRY.

[Inclosure in Consul-General New's report.—From the London Times of July 25, 1892.]

The county of Essex has long been famous as the center from which many agricultural advances have come, but probably none of these have met with more general acceptance than those which have been inaugurated by Mr. Walter Gilbey and his family. The latest of these advances was formally made public on Saturday at Stansted, when one of the prettiest and most complete dairies in the United Kingdom—it would not probably be hazarding too much to say in the world—was opened by the lady mayoress. This dairy has been built and fitted by Mr. James Blyth, who has become almost as famous as his uncle, Mr. Walter Gilbey, as a breeder of Jerseys, shire, hackney, and hunter horses, and Southdown sheep. On his Woodhouse estate he has one of the finest herds of the butter-producing Jerseys in the world, numbering nearly 200 head in all, and it is in order that the manufacture of butter may be of the best possible kind that the new dairy has been built. The object that Mr. Blyth has in view was thus explained in a short description of the dairy prepared for visitors on Saturday:

"His desire has been to encourage the making of the finest qualities of butter by affording an object lesson to the public of the conditions under which this can best be done. It is not, of course, essential that materials so expensive as marble or the motive power of electricity should be employed in order to produce good butter; but the aim is to point out to agriculturists the importance of taking pains in the manufacture of their butter, and of securing a uniformly good quality in its production. It is a remarkable fact that while 'gilt-edged' butter in New York realizes $1 (4*s*.) a pound, and the finest Normandy brands are sold in Paris at from 3*s*. to 3*s*. 6*d*. a pound, equally choice, if not superior, qualities of butter do not in this country fetch the enhanced prices over the ordinary article to which their superiority entitles them. If the public could be sure of obtaining uniformly good and, so to say, 'hall-marked' butter direct from the producer, there can be no doubt that the inhabitants of the richest city in the world would be willing to give for high-class fresh butter, made within short distances of the place of consumption, a much larger price than they now pay for blended and manipulated butters imported from abroad."

Having decided to build a good dairy, Mr. Blyth and his architect visited all the best dairies at home and abroad, while he also took the best advice as to the machinery and utensils with which it should be fitted. The result is a building of two stories, over a semibasement which forms the dairy proper—a half-timbered structure, built in the Jacobean style, of red brick and oak. The dairy proper is in the basement, and this consists of two rooms lined from top to bottom with Carrara marble, specially selected by the well-known house of Fabbricotti, who supplied the marble for the Albert Memorial in Hyde Park. The roof is paneled with marble, and the floors are also of marble. There is a complete electric-light installation throughout the whole building, and all the motive power required for the separators or the churns is supplied by electricity. The fittings consist of one of Lister's "Alexandra" separators (the actual machine used in the "Royal" working dairy at Warwick this year), Bradford's churn and butter-worker, and a set of Jersey creamers. The butter, when made, is stamped with the name of the dairy and the date on which it was made.

ITALY.

REPORT BY ACTING CONSUL PERATONER, OF CATANIA.

Electricity as a power in the propulsion of farm machinery and implements and in the propagation and growth of plants is entirely unknown in this consular district. Electricity is only used for illuminating purposes at Syracuse and partially at Catania, the former being thoroughly lighted by electric lamps.

AUGUSTUS PERATONER,
Acting Consul.

UNITED STATES CONSULATE,
Catania, June 28, 1892.

THE NETHERLANDS.

REPORT BY CONSUL SCHLEIER, OF AMSTERDAM.

I find that in neither the propulsion of farm machinery nor for the propagation of plants has any attempt been made here to utilize the power of electricity, and, as I have been informed, it is not probable that any efforts in this line will be tried for some time to come. However, electric cables are now being laid to transmit power for manufacturing purposes.

Excepting the telephone wires, all others must be laid underground.

T. M. SCHLEIER,
Consul.

UNITED STATES CONSULATE,
Amsterdam, June 25, 1892.

SPAIN.

BARCELONA.

REPORT BY CONSUL BOWEN.

Electricity is not used in this province in the propulsion of farm machines and implements, and is used in but one of the streets and in only a few of the buildings of Barcelona for lighting purposes.

HERBERT W. BOWEN,
Consul.

UNITED STATES CONSULATE,
Barcelona, July 5, 1892.

CADIZ.

REPORT BY CONSUL TURNER.

Electricity is not used in Spain as a power for the propulsion of farm machinery or implements. "Ninety per cent of the farmers of this province don't know what electricity is, and not one has ever thought of using it as a force for the propagation and growth of plants," is the answer given me by the officer in charge of the agricultural interests of the province.

I embrace this opportunity to repeat what I have said in former reports, viz, that the agricultural conditions that here exist are almost the same as those of the times of Ruth and Boaz. A stick sharpened at the end serves as a plow. The pictures in our illustrated Bibles that represent the "sower who went out to sow" are also true representations of the Spanish husbandman in seeding time. The reaping hook used in Cæsar's reign gathers the harvests of the present, asses and oxen trample out the grain, and the winds of heaven separate the wheat from the chaff. Hand tools of all kinds are clumsy and primitive, and the opportunity for the introduction of American farm implements and machinery is propitious. I am often made to think, that, in spite of consular reports, our manufacturers will not see their opportunity until the field is occupied by the enterprise of other countries.

Forty per cent of the area of Spain is not cultivated. A large part of the 60 per cent of cultivated land is farmed on the triennial system, each farm being divided into three parts—one resting, one bearing crops, and the other being fallow.

The representative of American farm machinery could truthfully promise to change for the better this state of things, and could urge, what all practical men know, viz, that Spain will never rise from her impoverished condition until her receptive soil is tilled with the fructifying agricultural implements and knowledge of modern times. Until this is done, in spite of her purchases abroad, which leave each year a balance of trade against her, thousands of her people will continue to lack a sufficiency of wholesome food.

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, July 12, 1892.

MALAGA.

REPORT BY CONSUL NEWSON.

The introduction of electricity for any purpose whatever into this region is of very recent date, the electric company having been organized on the 30th of June, 1890, with a capital of 200,000 pesetas, or $40,000. They commenced furnishing their lights immediately, and now have in use some 1,200, mostly in stores. Only part of a street has been lighted by electricity, and one hotel has very recently adopted the plant. The Spaniards take very kindly to this light, and my own impression is that it will be very generally used in the space of a year.

There is no electricity used as a power in the propulsion of farm machinery and implements nor in the propagation or growth of plants in this district. The company alluded to is the only one in existence in the province, with the exception of another small plant at Antequera.

T. M. NEWSON,
Consul.

UNITED STATES CONSULATE,
Malaga, July 15, 1892.

BRITISH AMERICA.

BAHAMAS.

REPORT BY CONSUL McLAIN, OF NASSAU.

I would respectfully report that electricity is not in use at all in this colony for agricultural purposes. I would add that, except for operating the Bahamas-Florida cable and a few private telephone wires, I am not aware that any use of electricity is made in this consular district.

THOS. J. McLAIN,
Consul.

UNITED STATES CONSULATE,
Nassau, June 23, 1892.

NOVA SCOTIA.

REPORT BY CONSUL SPENCER, OF PICTOU.

I find but one place in this consular district where electricity is used as a motor, viz, at the Gardiner mines, Cape Breton, where the Jeffrey coal-cutting machine, made at Columbus, Ohio, is worked by electricity.

There are quite a number of electric plants in the district for furnishing light, with a slow but steady growth.

ALONZO SPENCER,
Consul.

UNITED STATES CONSULATE,
Pictou, July 19, 1892.

ST. CHRISTOPHER.

REPORT BY COMMERCIAL AGENT PARKER.

Electricity is not used on this island for any purpose whatever other than the telephone, which is in successful use for all business communication around the entire island.

STEPHEN W. PARKER,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
St. Christopher, July 11, 1892.

ST. HYACINTHE.

REPORT BY COMMERCIAL AGENT WILLETT.

Electricity is not in use in this district for the propulsion of agricultural machinery nor for the propagation and growth of plants.

There are several electric-light plants, however. In this city may be mentioned the electric-light plants of the St. Hyacinthe Gaslight Company, the Granite Mills Company, the Bell Telephone Company, and private plants of Messrs. Casarant Brothers, organ-builders, and Messrs. Paquet & Godbort, contracting builders. The town of Waterloo also has an electric-light plant for furnishing the place with electric light. All of these, I understand, are increasing in growth.

EDWARD W. WILLETT,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
St. Hyacinthe, June 25, 1892.

BRITISH GUIANA.

REPORT BY CONSUL CARROLL.

I have the honor to say that there are no electrical appliances used here for agricultural purposes. Upon most sugar plantations of any size there are electric-light plants for lighting the various sugar factories.

Up to the present electricity has not been applied to any other use in this colony, save in lighting the city of Georgetown.

PHILIP CARROLL,
Consul.

UNITED STATES CONSULATE,
Demerara, August 22, 1892.

COLOMBIA.

REPORT BY CONSUL-GENERAL ADAMSON, OF PANAMA.

Up to the present time no measures have been taken toward making use of electricity as a power in the propulsion of farm machinery and implements or in the propagation and growth of plants in this consular district. It may be added that there are no farms, in the sense that the word "farm" is used in the United States, with the exception of some banana plantations, and almost the only agricultural implement in use here is the "machete," or cane knife.

Within the last two years or thereabouts the electric light has been introduced in this town, and efforts are being made to use electricity as a motive power on a street railway.

It is not probable that electricity will ever be needed to assist the growth of plants on this isthmus, as they grow so rapidly as to stifle agricultural efforts.

THOMAS ADAMSON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Panama, August 8, 1892.

CUBA.

REPORT BY CONSUL CHENEY, OF MATANZAS.

As to electricity as a power for the propulsion of farm machinery and implements and in the propagation of plants, I have the honor to report that, after diligent inquiry, I am unable to find that any experiments in that line have ever been attempted within this consular district. The soil of Cuba is so rich and vegetation is so rank that it seems not seriously to have occurred to planters that possibly it could be made still more productive by the use of artificial expedients.

The sugar-planters of Cuba are probably as keen to scent a possible honest dollar of profit as men in general. They have brought the culture of cane and its conversion into sugar to a high degree of perfection; but it would seem to devolve upon the electrician to convince them that the subtle agent which is rapidly revolutionizing a world can be profitably applied in the culture. I have no doubt that they would respond quickly to such a showing.

ELIAS H. CHENEY,
Consul.

UNITED STATES CONSULATE,
Matanzas, July 6, 1892.

DUTCH GUIANA.

REPORT BY ACTING CONSUL WYNDHAM, OF PARAMARIBO.

In this colony there is at present only one electrical plant, which is at plantation "Rust en Werk," where it is only used to illuminate the building where the sugar mills are erected. No street lights or electrical cars have as yet been introduced. In dealing with this matter the possibility of the application of electricity to the purpose of cocoa-drying presents itself to me; and, as that is, next to the sugar production, the most important of the exports of this colony, I venture to suggest the idea, as just at present many systems of cocoa-drying are being tested, not one of which has, as far as I can ascertain, been successful.

W. WYNDHAM,
Acting Consul.

UNITED STATES CONSULATE,
Paramaribo, July 8, 1892.

PERU.

REPORT BY CONSUL DAUGHERTY, OF CALLAO.

But one city in Peru (Lima) has employed electricity even for lighting purposes, and that only to a limited extent. However, I see by the papers that Arequipa has advertised for bids looking to the introduction of a plant for lighting that city. An effort is also being made to arrange with the city railroads of Lima for the propulsion of the cars of those lines, but thus far without success. So far as I can learn, no kind of machinery, farm or otherwise, is moved by electricity; and its use for propagating and growing plants has not, so far as I can ascertain, been even discussed.

A. J. DAUGHERTY,
Consul.

UNITED STATES CONSULATE,
Callao, July 13, 1892.

VENEZUELA.

REPORT BY DEPUTY CONSUL VOLGER, OF MARACAIBO.

I have the honor to state that in this consular district electricity has never been used for agricultural purposes, it being confined to street and house lighting, telegraphs, and telephones.

W. VOLGER,
Deputy Consul.

UNITED STATES CONSULATE,
Maracaibo, July 20, 1892.

CEYLON.

REPORT BY CONSUL MOREY.

Electricity is only used in Ceylon in connection with the telegraph and telephone. There seems, however, to be a wide field for its use.

The Colombo tram cars, which now, after many years of procrastination, are likely to soon become an accomplished fact, will probably be propelled by electricity; and the town of Colombo, now very indifferently lighted by gas, would be immeasurably improved by electric lighting. Galle and Kandy, the two other principal cities in Ceylon, could be greatly benefited in the same way.

The tea enterprise, especially in the Central Province, or mountain zone, could probably be much helped by the introduction of electricity as a motive power for the machinery universally in use for curing tea. Steam is now used for that purpose, and, as fuel is becoming scarce and dear, it would appear as though there was a good opening for the more novel power, which could probably be used most economically on account of the numerous perennial streams abounding in that locality, from whence the inceptive power for utilizing electricity is easily obtainable.

It might be worth the while of some of the electric-power people in the United States to exploit this promising locality.

Since the foregoing was written the following paragraph appeared in the London correspondence of the Times, of Ceylon, a local newspaper:

> An agent of the American electrical company known as the "Thomson-Houston Company" has just left Liverpool for Boston after a visit to your island for business purposes. When in London he intimated that he had formed a syndicate for lighting Colombo with electricity, and that a number of the shares had been taken on the spot. If this be the case, I can only say it is strange that the matter has not been noticed in any of the Colombo papers.

How much truth there is in this I have not the means of knowing.

W. MOREY,
Consul.

UNITED STATES CONSULATE,
Colombo, July 14, 1892.

CHINA.

REPORT BY CONSUL FOWLER, OF NINGPO.

With the exception of electric lights on the local steamers and a small plant at a mission school at Hangchow, the use of electricity in any form is entirely unknown in this vast and populous district.

JOHN W. FOWLER,
Consul.

UNITED STATES CONSULATE,
Ningpo, August 1, 1892.

MOROCCO.

REPORT BY CONSUL-GENERAL MATHEWS, OF TANGIER.

I beg to reply that no electricity is in use in Morocco, except at Tangier, where it has been introduced by a Spaniard as an experiment in lighting a few of the principal streets, but as yet has met with little success.

F. A. MATHEWS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Tangier, July 13, 1892.

AUSTRALIA.

REPORT BY CONSUL-GENERAL WALLACE, OF MELBOURNE.

The city of Melbourne has dispatched its electrical engineer to the United States and Europe to study and obtain for the metropolis and colony all of the latest and most practicable applications of electricity. With the exception of two small plants in the city and a few among the mines for lighting purposes, there is little or no use of electricity in any manner in the colony.

In reply to a letter of mine, I received the following, dated July 26, from Mr. D. E. Martin, secretary for agriculture:

> I have the honor to acknowledge the receipt of your letter of the 21st ultimo, and in reply to state that electricity is not yet used in this colony as a power in the propulsion of farm machinery and implements nor in the propagation or growth of plants.

GEO. H. WALLACE,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Melbourne, July 29, 1892.

FIJI.

REPORT BY COMMERCIAL AGENT ST. JOHN, OF LEVUKA.

I have to state that electricity is not used in this colony either as a motor or for telegraphy; and but for a short line from the government offices to the governor's residence at Suva, a distance of about 1 mile, is it used for the telephone. Nor do I think its use will be further adopted for a long time in the future in this colony for any other purpose than that above mentioned, that is, short lines of telephone, instruments for which will be entirely imported.

ANDREWS A. ST. JOHN,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Levuka, July 26, 1892.

THE ELECTRIC LIGHT IN MALTA.

REPORT BY CONSUL WORTHINGTON.

Referring to two former dispatches, I beg that this may be considered to be a continuation thereof, in that it treats of the same subject, *i. e.*, the project of introducing electric light into Malta.

In furtherance of the project, Mr. W. H. Preece, who is the chief engineer of the London post-office, has arrived in Malta in connection with the proposed installation of the electric light. Mr. Preece is one of the highest English authorities on the subject. He has, since his arrival, had various conferences with the chiefs of departments and with the elected members of the council—without whose favorable votes no public money can be expended—and the result of his personal observations of the situation and of his conferences is embodied in a report which has been published in the Malta Government Gazette of the 12th instant.

Mr. Preece's report strongly recommends that the government of Malta itself shall establish and maintain the electric light, thus enabling consumers to obtain at cost price their light, which, if manufactured and supplied by a private company, would cost the consumers an excess of about one-third. His idea and advice is that the public would obtain the best results if the government controlled the electric plant and worked it on what would practically and really be the coöperative principle. That plan would have one prime merit, *i. e.*, manufacturers who put in bids to supply the plant would be absolutely safe against possible loss, for the reason that the credit of the Malta government is beyond doubt. Mr. Preece says that "the most important question for the council to decide (if they determine to adopt the electric light) is, shall they do it themselves or shall they transfer their powers to a private company?" He maintains that private companies mean dearer light. He adds that the government can borrow money at 3 per cent; a public (or private) company could not raise it at 7 per cent. He states that the government could supply the electric light to consumers at a charge of 14 cents per supply unit; a private company would have to charge 18 cents, if not 20 cents. He states that 14 cents per unit is now the same as gas at 84 cents per 1,000 cubic feet, while 18 cents per unit means $1.08.

"If the government find the capital and adopt my suggestion," Mr. Preece says, "they will secure tenders from the most eminent and most responsible houses in the world, they will attract the dearly bought experience of the best firms, they will assure the absolute success of the work, and they will guaranty an expenditure that will not exceed the estimates."

Mr. Preece does not doubt but that all the conditions can be met, and that an installation could be in working order in Malta by next winter.

Should American companies desire to submit tenders for the electric light in Malta, they can obtain all the necessary specifications and plans for what is required by addressing Mr. W. H. Preece, chief engineer of the London post-office, England, or the chief secretary to the government, Malta.

It would be a splendid advertisement for any American firm to secure the contract of lighting by electricity the renowned, historic, and much-visited island of Malta. I would do more than a little to assist in the accomplishment of such an enterprise.

JOHN WORTHINGTON,
Consul.

UNITED STATES CONSULATE,
Malta, January 13, 1893.

THE INTRODUCTION OF THE ELECTRIC LIGHT INTO MALTA.

[Inclosure in Consul Worthington's report.]

I have thought it desirable to report, for the information of his excellency and to place on record before leaving Malta, the principal facts and arguments which I have submitted and discussed at the conferences which I was invited to hold with members of the council of government. I propose subsequently to submit a full report detailing all my conclusions after the careful survey of the subject that I have made during my stay.

(1) By installing a system of electric lighting the council would not be embarking in a speculation, for they would commence with an income guarantied by the imperial war department and by the Maltese government, and this assured income is more than sufficient to meet all working expenses and to pay interest on capital borrowed. The income guarantied is—

War department	£2,891
Maltese government	4,329

I estimate that in Valetta alone, from hotels, clubs, offices, shops, restaurants, etc., we could immediately secure an income of £2,780, making the total income £10,000.

(2) In my previous report (December 1, 1890) I estimated the total cost of the installation at £40,000. Two years' further experience has convinced me that my estimate is over the mark, rather than under it. The following towns in the United Kingdom have themselves carried out a system, and I give the capital expended and the number of lamps installed in each case:

Towns.	Capital expended.	Number of lamps.
Bradford	£42,341	18,000
St. Pancras	80,000	20,000
Brighton	35,377	10,258
Dublin	33,000	10,000
Total	190,718	58,258

This is an average of £3 6*s.* per lamp, while my estimate was at the rate of £4 per lamp.

(3) My estimate of working expenses has equally been confirmed by subsequent experience. This estimate was full and complete, and included every possible charge for coal, water, oil, waste, engine stores, administration, supervision, general establishment charges, labor, repairs, maintenance, and depreciation.

The total working expenses on a plant of 10,000 lamps would amount to £5,380; and, allowing an ample margin for interest on capital and for the establishment of a sinking fund to redeem the whole capital in thirty years, there would remain a profit to further the business or to be applied to some useful purpose, such as building schools or improving sanitary arrangements.

But this profit is not contingent on the success of private lighting. It would be equally true if we worked on the guarantied income alone, which would mean an installation of about 7,000 lamps, the capital expended and the working expenses being reduced pro rata.

My estimate of working expenses is based not alone on my own experience, which is very considerable, but on that of several large installations worked by local authorities and by private companies, the returns of which have been audited by the board of trade and published. The system of auditing by the board of trade in England, as directed by the acts of Parliament of 1882 and 1888 respecting electric lighting, assures to the public a safe check on expenditure and prevents that fudging of accounts that has become such a very serious blot on the commercial morality of the city of London.

(4) The council, also, would not incur any risk. The hesitation to adopt the electric light in Malta is, clearly, distrust in estimates and fear of want of success. The same diffidence has existed everywhere, but success is removing all fear and all distrust. The growth of the business surpasses the most sanguine anticipations. I submit an extract from the Daily News of October 13, 1892:

"ELECTRIC LIGHTING IN ST. PANCRAS.

"At the St. Pancras vestry meeting yesterday it was explained by Mr. A. Sweet, chairman of the electricity committee, that no rate whatever would be required to be levied in respect of electric-lighting purposes. Further, it was stated that High street, Camden Town, would be illuminated with arc lamps on high iron columns, in a similar way to Euston road and Tottenham Court road. The committee, having inspected the arc lamps of various makers and considered their respective merits, were of opinion that the arc lamp now in use in the parish was at this period the best lamp that could be adopted for street lighting. Applications for the electric current were received from residents on the west side of Gordon Square, and it was decided to lay a main for the purpose of supplying the desired current. Mr. N. Robinson, L. C. C., asked Mr. Sweet whether the electric system adopted in the parish was a financial success and likely to pay its way. Mr. Sweet replied that, so far from the electric system having proved a failure financially, he was surprised that so large an undertaking should have been carried out without the necessity of any rate whatever. Already they had more orders for the electric current than, with their existing station accommodation and facilities, they could supply. There was not the least doubt that the present installation would pay. Answering Dr. Bell, Mr. Sweet said: 'Of course, the vestry were supplying electricity at a profit'"

This success is evident everywhere, and it is more marked where local authorities have done the work, for in those places the ratepayers and taxpayers become the proprietors themselves. They become their own customers, and they take an interest in their own business. The rate of growth in such places far exceeds that in places where private companies do the work. This curious experience is also perceptible in England, where corporations have become gas manufacturers. There, therefore, is no risk.

(5) The most important question for the council to decide—assuming that they have agreed to adopt the electric light—is, shall they do it themselves or shall they transfer their powers to a private company? I am not an advocate for inviting private enterprise to undertake such a work. The history of private enterprise in such schemes is not wholesome reading. A private company would mean a greatly enlarged capital, and the extended capital would not all be devoted to legitimate expenditure. The financier, the broker, the underwriter, and the promoter requires his "plunder." Moreover, the enlarged capital would require a larger income to pay dividends, and therefore the customer would be unnecessarily taxed. The city of London is lighted by a private company, and the user pays 8*d.* per supply unit. The neighboring district of St. Pancras is lighted by the local authorities, and the users pay only 6*d.* The Brighton Corporation charges 7*d.*, but a private company in the same town charges 10*d.* It is everywhere the same. Private companies mean dearer light. The government of Malta can borrow money at 3 per cent; a public company could not raise it at 7

per cent. The experience of private companies in Malta is not encouraging. The dock company and the railway company collapsed completely, and the proceedings of the gas company have not been marked either by success, enterprise, or by ability. Overloaded capital leads to prohibitive tariffs and poor business. A local authority obtains its capital at the cheapest rate; it expends all its money legitimately; it has no necessity to starve working resources; it requires a very small profit for its low rate of interest; and it charges its users the manufactured article at virtually cost price. I propose that the government should charge *7d.* per supply unit; a private company would have to charge *9d.*, if not *10d.* Seven pence per unit is now the same as gas at *3s. 6d.* per 1,000 cubic feet, while *9d.* per unit means *4s. 6d.* The government can thus supply electricity cheaper than gas, but a private company could not compete with gas.

(6) It is sometimes urged that local governments, in undertaking to supply electricity, are establishing a monopoly that is antagonistic to true commercial policy. But a monopoly acquired by the few and maintained at the expense of the many is a very different thing to a monopoly acquired by the many and maintained for their own comfort, health, and prosperity. No one doubts the policy of a local government in maintaining streets and roads in perfect repair, in securing proper drainage, in supplying pure and wholesome water, in removing nuisances, in encouraging ventilation and proper sanitary appliances, or, in fact, in providing their constituents and their community with all that is requisite for their health and happiness. Now, illumination is a necessity, but it may become a nuisance. Gas, oil, and candles may be, and frequently are, injurious to health. Electric lighting is the reverse. It does not vitiate the air we breathe; it is the coolest form of practical lighting known; it is healthy, wholesome, and cheerful. As illumination is the necessity of the community, it is the duty of their governing body to supply them with it at the cheapest rate and in the most unadulterated form; in fact, electricity can not be adulterated. But the establishment of electric lighting is not a monopoly. It does not exclude the use of gas, oil, or candles. In fact, wherever electricity has been introduced the gas industry has benefited. There are more candles manufactured in England now than ever there were before in the history of the country. Competition is healthy, and the introduction of the electric light has done immense public service in stirring up the gas interest, in improving oil-burning appliances, securing better candles, and, generally, in adding to the comforts of the community.

(7) The proper illumination of the streets is the function of the local government. It facilitates locomotion, it adds to the security of premises, it facilitates the police supervision, it prevents accident, and it promotes business. With the exception of the Strada Reale, the streets of the four cities are very badly lighted, and the government is paying a very high price for a very poor service. At the same price the illumination can be improved fourfold by electricity; but, if a private company was to supply the electricity, such a vast improvement would be impossible except at an enhanced price, for the government can do it at cost price, while a company must make some profit to pay interest on its greater capital. The improved illumination of the streets would be a most popular movement. Every inhabitant would feel an interest in the undertaking. There is frequently a feeling that the electric light benefits the wealthy classes at the expense of the poorer ones; but when the streets, that are common to all, are brilliantly lighted, the poorest of the poor express an interest in the matter and feel that they are receiving their share of advantage. Moreover, the success of electric lighting in the streets would prove a great local advertisement of the business itself to those who would doubtless become private consumers.

(8) The supply of electricity to our living rooms introduces an element of comfort in warm climates that is of incalculable value. It is the use of motive power to set fans in motion to cool the air, and, generally, to facilitate home industries by turning lathes, sewing machines, and hair-brushing appliances.

(9) I urge, therefore, that the council, for sanitary reasons, should introduce electric lighting, because it is their duty to do so. It would prove an attraction to visitors, for the absence of the electric light has already excited unpleasant comparisons between the hotels of Switzer-

land, Germany, and Italy and those of Valetta. It would advertise the island over the whole world, and it would facilitate the conduct of business in the harbor. It would prove a great element of economy, and it would, above all, promote and improve the health of the place. It seems ludicrous that so many small and unimportant towns in Italy and Spain should have the comforts of the electric light, while this center of population, with more than 80,000 inhabitants, remains in a dark background.

(10) The following towns in the United Kingdom are themselves, as undertakers, now actively engaged in equipping central stations: Glasgow, Bristol, Worcester, Wolverhampton, Blackpool, Southport, Dundee, Manchester, Nottingham, Burnley, Huddersfield, Dewsbury, Yarmouth, York, and Derby. The number of towns considering the question is too great to tabulate in this report. The following towns have sanctioned the operations of private companies: Newcastle, Cambridge, Liverpool, Birmingham, Exeter, Taunton, Leamington, Bath, Leeds, Oxford, and Norwich.

(11) There is little doubt that sooner or later all corporations which have been weak enough to part with their rights will have to purchase the business at a price greatly in excess of that at which they could have established it themselves. In fact, the corporations of Taunton and Bath are now negotiating for the purchase. The companies, as a rule, are not, however, nearly so successful in their financial undertakings as the corporations have been, for reasons which I have given. The most successful companies in the provinces are those at Newcastle and Liverpool.

(12) I propose without delay—in fact, immediately on my return to London—to prepare full specifications and plans of what is required to be done in the four cities and in Sliema. I will divide these plans in three parts, dealing respectively with (*a*) Valetta and Florian, (*b*) the three cities, and (*c*) Sliema and Hamrun. I propose to do this, for I think it will be a question for the careful consideration of the council whether they will not start tentatively with Valetta and Florian rather than embark in the whole scheme at once; for, by starting with a smaller scheme, they will acquire more speedily that experience and confidence which they want to justify their going into the larger scheme. The lighting of Valetta and Florian alone would not require a capital of more than £25,000, and it would secure at once the cream of the business.

(13) I strongly urge the council, for the reasons I have given, to find the capital themselves. There is no justification for any other course. But I see no objection whatever to obtain terms from a contracting company to work the installation for a term of years, and I propose in the specifications to insert clauses to admit of this course being followed. If the government find the capital and adopt my suggestion, they will secure tenders from the most eminent and most responsible houses in the world, they will attract the dearly bought experience of the best firms, they will insure the absolute success of the work, and they will guaranty an expenditure that will not exceed the estimates. If, on the other hand, they invite a company to do the whole work, they may encourage speculation and company promoters, but they will not attract the attention of such strong firms as Siemens Brothers; Crompton & Co.; the Brush Company, of London; Ganz & Co., of Buda-Pesth; the Thomson-Houston Company, of the United States—each of which firms will tender to the work for a fair price, and would maintain the system in working for a term of years if the government is prepared to find the capital, but would not look at the business at all if they had to find the capital.

(14) The course to be adopted appears, therefore, to be the following: (*a*) For the council to decide on adopting the electric light; (*b*) that authority be given to raise capital; (*c*) that specifications and plans be prepared; (*d*) that tenders be invited to install the work and to maintain it in working order for a term of years; (*e*) that these tenders be carefully examined, analyzed, and compared, and that a report be made on the different proposals, selecting for acceptance the most eligible and the most economical in prime cost and in working expenses; (*f*) the work of installation will have to be thoroughly inspected during progress; (*g*) an experienced and responsible engineer will have to be selected to maintain

everything in perfect working order. I have no doubt whatever that all these conditions can be met, and that an installation could be in working order by next winter which would give satisfaction to everyone concerned, not only in steadiness, brilliancy, and constancy, but in financial success.

Estimated balance sheet of the proposed Malta electric-lighting installation.

Revenue:	
Guarantied by the war department	£2,891
Guarantied by the Maltese government	4,329
Estimated private supply from hotels, clubs, offices, shops, residences, etc	2,780
Total receipts	10,000
Working expenses:	
Coal	1,500
Water	30
Oil, waste, and engine stores	250
Labor	950
Supervision and administration	550
General establishment charges	150
Repairs and maintenance	1,200
Depreciation of mains, etc	750
Total	5,380
Interest at 3 per cent on a capital of £40,000	1,200
Sinking fund at 2¼ per cent	900
Profit	2,520
Total	10,000

W. H. PREECE.

VALETTA, *January 9, 1893.*

MEXICAN MINING TAX.

REPORT BY MINISTER RYAN.

I have the honor to transmit herewith a translation of an executive decree, dated the 31st ultimo and published in the Diario Oficial of the 2d instant, making certain modifications of the mining laws of the Republic.

THOS. RYAN,
Minister.

UNITED STATES LEGATION,
Mexico, January 11, 1893.

MEXICAN MINING TAX.

[Inclosure in Minister Ryan's report.—Translation.]

ARTICLE 1. The periods specified in articles 4 and 5 of the law of June 6, 1892, for the payment of the annual mining tax shall date from November 1 of the current year, and not from July 1 of same year, the date set forth in the aforementioned articles.

ART. 2. Mine-owners who may have paid up the tax from July 1 to the 31st of October, 1892, shall have the amount so paid refunded in stamps of the mining-tax issue, to be furnished to such owners by the stamp-tax offices wherein they had made such payment, the same stamps to be affixed upon and canceled upon the respective receipt of November, 1892, to February, 1893, both inclusive. Mine-owners having paid up their tax for the period last mentioned shall have the stamps credited to their receipts of March to June 1893, inclusive.

ART. 3. Mining concessionaires who may have solicited and secured, after the 1st of July, 1892, a reduction in the number of their holdings have right, in virtue of the rebate of the first ternion of the current fiscal year granted under this decree, to be reimbursed, in accordance with the rulings of the preceding article, for the excess they may have paid in lieu of title tax and the annual mining tax.

ART. 4. The holders by concession of mining properties who, relinquishing their contract rights, elect to embrace the new mining law, should present their titles and new statements in accordance with article 3 of the regulation of June 30 last within the period of two months from the date of this decree, the annual payment to be computed from the 1st of November, 1892, or from such date whereon the department of public works may approve the option, should it be subsequent to the said date.

STRIKES IN NEW SOUTH WALES.

REPORT BY CONSUL KAPUS, OF SYDNEY.

The report of the royal commission appointed "to investigate and report the causes of conflicts between capital and labor, known as strikes, and the best means of preventing or mitigating the disastrous consequences of such occurrences," has just been published by the government of New South Wales.

While the report of the commission is of quite formidable proportions and the findings and conclusions many, it has not prevented the recurrence of strikes in this colony. One of the most extensive and far-reaching strikes that has taken place in its history is now on at Broken Hill, the principal silver-mining region, involving thousands of miners and millions of capital—one that necessitated the interference of the armed forces of the government to protect the property of the mine-owners and the lives of the nonunion employés. This strike was brought about by the same old causes—the unwillingness of the labor unions to allow the employment of nonunion workmen and their demand to fix the rate of wages, etc. This strike is now, however, in a fair way of being terminated. The mine-owners, under the protection of the authorities, have succeeded in securing a large number of nonunion miners and laborers, and the leaders of the strikers are now being tried, under the charge of conspiracy, in the circuit court at Deniliquin.

WM. KAPUS,
Consul.

UNITED STATES CONSULATE,
Sydney, October 27, 1892.

PUBLIC IMPROVEMENTS IN NICARAGUA.

REPORT BY CONSUL NEWELL, OF MANAGUA.

During the past year and a half there have been a number of improvements made throughout the Republic of Nicaragua, the more important ones being the erection of markets, construction of street railways, and organization of water companies. Upon these I have the honor to report the following.

GRANADA MARKET.

For a number of years Granada was illy supplied with market facilities; in fact, I might say that she had none at all. The venders of merchandise, vegetables, fruits, salt, and sugar occupied stands in the wide corridors of the buildings that stand to the south and west sides of the plaza. Though the men and women standing and sitting in the corridors with their stock in trade presented a unique picture for the eye of the tourist, it was far from businesslike and the resort was an eyesore to the city. Around the plaza the streets were always dirty, as the market women and men were constantly throwing into them the goods that had proven unsalable. This condition of affairs at last aroused the attention of the more public-spirited men of the city, and the consequence is that Granada can now point with pride to a fine edifice.

This building is constructed in the usual form—that of a hollow square—the main portion of which is one story high, with a slightly pitched roof. Running from the main entrance through the entire building is an arched corridor, the roof of which is of corrugated iron; this arch is supported by many iron columns, with fancy corrugated-iron capitals. At the four corners of the structure stand towers which extend one story above the main building. These towers are ornamented with pilasters, crowned with cornice and pediment. On either side of the main entrance rise towers that project a story and a half beyond the roof of the main edifice. There is a stone pavement on the north and west sides of the market, the portion now completed, and cemented floors within the stores and other portions of the structure.

The construction of the market was begun May 20, 1891. It will occupy, when completed, a space of a little over 2 acres. The style of architecture is Renaissance. Stone and brick, with hydraulic mortar, are the materials of which the building is composed. The roof is constructed of iron and wood, covered with plastic slate from the United States. At this time only one-half of the structure is finished, while in the other half there is a provisional open market place.

The estimated cost of the edifice, when completed according to the plans, is $206,000 (soles). Already there has been expended the sum of $70,000. The stone, brick, and mortar entering into the composition of the building are all native products; the ironwork is from England and the United States.

In the part now finished there are twenty-two rooms for stores, but the building when fully completed will contain forty-four such rooms. Besides these rooms, there are one hundred and fifty stands for selling small articles and fifteen special meat stalls. There are also a large number of pavement, or curbstone, spaces for the Indians, who come daily to sell small quantities of fruit, vegetables, and native wares.

From 250 to 300 persons are daily in attendance at the market engaged in vending some commodity. The average daily revenue is $50; the expenses amount to $300 per month.

Granada's market was erected by the city council from money raised by a loan, which it floated at 80 cents on the dollar. The management of the enterprise was given into the hands of the capitalists subscribing the funds, and the structure was also mortgaged to them, along with the ground, until the nominal capital is repaid with interest at the rate of 1 per cent per month. The edifice is open every day in the week, Sundays and holidays not excepted.

MASAYA MARKET.

For many years anterior to the date of this report Masaya possessed worse market facilities than Granada. It did not have even the corridors of buildings, like its sister city, for the congregation of its market people. They usually congregated in the plaza, under the shadow of the principal church, and there, in the wind and in the rain, sitting or standing upon the bare ground, awaited their patrons.

The matter of a market was considered by the Nicaragua Company (limited), an organization of English capitalists who have varied interests in this Republic, with headquarters in London, and to it is due the edifice that now adorns the city of Masaya.

This structure is very similar in design to that in Granada, and covers the same extent of surface—2 acres. It is entirely completed, and has sixty-four rooms that can be used as stores. There is a large covered way through the center of the building, which is in part for the accommodation of butchers and for the sellers of fruit, salt, and vegetables. The courts of the market are surrounded with corridors, giving plenty of space for stalls. In the courtyards are spaces allotted for carts, as in Nicaragua many venders come to market with sugar, salt, and plantains and sell direct from their carts, instead of selling from stalls or stores. In connection with the market is a large public kitchen, where the market restaurateurs can prepare and cook food.

It is the intention of the management to soon introduce water into the building and add public baths.

This edifice was constructed at a cost of $106,000 in gold. It is built of volcanic stone taken from a quarry not far from the site of the market. As this stone is very black, the structure presents an appearance of great antiquity, and if it possessed an altitude greater than one story, would resemble more a castle than a market. The roof is surmounted with a parapet that extends around the entire building. At the main entrance are two large, iron open-work gates painted dark blue and limned with gold. The market has four entrances, and on each side there are handsome iron bracket lamps. Throughout the entire structure, in the stores and in the corridors, the floors are laid in Portland cement.

The monthly income is $1,150, and the expenses $300.

GRANADA TRAMWAY.

The street railway of Granada was projected about one year ago, and cars were run over the line for the first time in September last. The persons composing the company are citizens of Nicaragua, and, I believe, all residents of Granada. Originally the idea of a tramway in the city was that of a foreigner, the same gentleman who conceived and carried into effect the Rivas street-car line. After the company was organized this foreigner disposed of his interest to the syndicate that now owns the line.

The length of the route is 1 mile 300 yards, extending from the railroad station to the market. The rails and the cars are of American manufacture, the first costing $5,000 and the latter $3,000 in gold. For laying the track the sum of $3,000 was expended. It cost to bring the cars and rails to the city of Granada from New York, via San Juan del Norte, the sum of $2,000. An expenditure of $2,000 has been made for the purchase of land for the erection of a car shed and necessary offices, which will be erected at a cost of $1,000. Twenty-four mules now comprise the number of animals in service; these animals were bought for $60 per head.

Besides the sums mentioned, the company has expended the sum of $1,000 for incidentals and $1,500 for the rights held by the organizer of the enterprise. The total amount expended in organizing the company and constructing the line to date has been $24,740 (soles).

Originally the company was organized on a basis of thirty-five shares, valued at $500 per share. Since beginning and completing the line the company has been compelled to issue five more shares at the former valuation, so that there are now forty shares, representing a capital of $20,000 (soles).

The daily income averages from $13 to $15. On holidays the earnings reach the sum of $50. The employés number seven, and the daily expenses are about $10.

The cars are the usual pattern denominated in the United States "bob-tailed," though here they use two animals and employ both conductor and driver. According to the opinion of many, the company made a mistake in not having selected open, or summer, cars, which would be preferable in this tropical clime. At the present time all the cars run one way, that is, the three cars leave the railroad station at about the same moment and change at the market. This necessitates delay, and in consequence the line is not as popular as it might be. The fare is 5 cents. This innovation has compelled the hack-owners to reduce their fares from 20 cents from the station to any part of the city to 10 cents, and from 30 cents from any part of the city to the station to 15 cents.

MASAYA WATERWORKS.

These works have been in operation since September 1, and were commenced about two years ago. The originators of this enterprise are foreigners, though a large portion of the stock is owned by Nicaraguans. The estimated cost of the plant is $130,000.

The point from which the water is derived is known as Tincuantepe, distant from Masaya 16 miles and elevated above the city 800 feet. Around the fall of Tincuantepe the scenery is very picturesque. The water is pure, wholesome, and clear as crystal. At Nindiri, a small Indian village, 1½ miles from Masaya, the company has built an immense reservoir, with an elevation of 140 feet, capable of holding 600,000 gallons. From Nindiri to Masaya there is a pressure equal to 500 pounds to the square inch.

The mains are of 3 and 4 inch iron pipe. The principal main is laid on Monibo street. Few mains as yet have been laid on the side streets. This company was organized with a capital stock of $126,000, that is, thirty shares at $4,200 per share. The piping was purchased in the United States. There is every indication to believe that the enterprise will prove a paying one. Masaya has a population estimated at 16,000, and is on the line of the national railroad running from Managua to Granada.

MASATEPE WATERWORKS.

Masatepe is a small village about one hour and a half's ride from Masaya, and has within and around its confines a population of 10,000. The source of the water supply is Lake Masaya. This lake lies 300 feet below the town of the same name, surrounded, excepting on the western side, by precipitous cliffs, down which three or four rocky paths have been cut. In order to reach a proper level, the water is pumped from the lake to a height of 1,020 feet. The length of the main, that is, from the lake to Masatepe, is 3 miles.

A company was organized to construct these works on a basis of one thousand shares at $25 per share, and it is estimated that the plant cost $25,000.

LEON WATERWORKS.

On the 7th of July last a concession was granted by the city of Leon to a company for the introduction of water and the erection of the necessary works. A company has been organized with a capital stock amounting to $107,500, divided into two hundred and fifteen shares at $500 per share. The municipality of Leon has subscribed for six shares. It is believed that the works will not cost less than $120,000.

The water is to be taken from the Rio Chiquita, distant about half a mile from the city. It is understood that the company will lay about 13 miles of piping between now and the early part of next year.

The enterprise should be successful, as it has a greater population to draw from than any other portion of Nicaragua. The inhabitants of Leon are supposed to number 40,000.

SAN ANTONIO SUGAR REFINERY.

Upon this enterprise I have already reported; but, as the management has made some improvements since that report, it is proper to revert to it again.

The company has just lately purchased a mile of portable railway, costing $5,000 in gold. This machinery was bought in the United States, because it comes free into this country under the reciprocity treaty and because it is superior to all others. The company has also added electrical machinery to their already perfect sugar-refining plant. Electric lights will be placed in the main building and in the houses set apart for the officers and employés.

The San Antonio Sugar Company is the most important undertaking in Nicaragua, and, I believe, in the whole of Central America. Their object is to revolutionize the sugar industry of these countries, which their capital and extensive plant will well enable them to do.

The gentleman who has charge of the purchasing department of this concern assures me that American pumps and boilers take the lead of all others.

WESTINGHOUSE MACHINERY.

Messrs. Morris, Hyden & Co., merchants of Leon and Managua, are the first to introduce Westinghouse machinery into Nicaragua. These same gentlemen were the originators of the artesian-well system now prevalent in this Republic. This machine is of 10-horse power. It is proposed to use this machinery as the motive power for cleaning coffee. These gentlemen hope, by means of a hot-air blower, such as is manufactured by the Sturdivant Blower Company, of New York city, to dispense with drying coffee in *patios*, which is the means now prevailing in Nicaragua.

Using the Westinghouse machine as motive power, Messrs. Morris, Hyden & Co., propose to light their store in Managua, the market (in which they are largely interested), and also the Hotel Lupone with electricity. Should they carry out this design, it will be the first use of electric lights in this Republic.

PROPOSED IMPROVEMENTS.

The business men of Granada are now considering the advisability of improving their water system. At this time the supply is very limited and inadequate to the needs of the city. This system will be improved if the gentlemen who have the new venture in hand can induce the old company to dispose of its interests. It is believed that the old company will sell. As soon as the transfer is consummated the new company will proceed to expend $60,000 in improving the water system and $40,000 for electrical machinery. I am assured that the city of Granada will be lighted by electricity not later than the middle of the year 1893.

Besides the tramway that runs from the station to the market in Granada, it is proposed to construct another from the cemetery to Lake Nicaragua. Those interested in the project have estimated the cost to construct the line at $50,000 (soles).

The young men of Granada are considering the proposition of erecting a hippodrome, where there can be racing and a place for athletic games of all kinds.

It is proposed to construct public baths on the shores of Lake Nicaragua, in Granada.

Capitalists of Leon are considering the suggestion to build a tramway through the principal street and to the railroad station.

WILLIAM NEWELL,
Consul.

UNITED STATES CONSULATE,
Managua, November 25, 1892.

THE NILE FLOOD OF 1892.

REPORT BY ACTING CONSUL-GENERAL GRANT, OF CAIRO.

I have the honor to inclose herewith the report of the undersecretary for public works in Egypt on the Nile flood of 1892, which I have no doubt will prove of interest to the Department.

LOUIS B. GRANT,
Acting Consul-General.

UNITED STATES CONSULATE-GENERAL,
Cairo, November 21, 1892.

NILE FLOOD OF 1892.

[Inclosure in Acting Consul-General Grant's report.]

SUMMER SUPPLY, 1892.

The supply in the river during the summer months of 1892 was an exceedingly low one. With the exception of the years 1889 and 1890, it was the lowest that we have known since the notable year of 1878.

RELATION BETWEEN SUMMER AND FLOOD SUPPLY.

It would almost appear as though a low summer supply presaged a high flood, for since the year 1874, with one exception, the latter has followed the former. The exception is the year 1889, when we had an exceedingly low Nile in summer and a very ordinary flood following it. In 1874, 1878, 1890, and now in 1892 the river fell during the months of May, June, and July to an exceptionally low level, and in each of the four above-mentioned years the flood was a very high one, and in three out of four of them, viz, 1874, 1878, and 1892, rising to a dangerous level. In 1890 the flood, although not actually a dangerous one, was yet a very high and a very late one, the river during the latter half of October attaining a greater height than it had stood at during the same period in 1887.

In the last eighteen years, then, in four instances out of five, an exceptionally low supply in summer has been followed by an exceptionally high flood supply.

RISE OF FLOOD IN 1892.

Beyond the above facts, there was nothing in the rise of the river during the months of July and August of this year to warrant the supposition that it was likely to rise to a dangerous height. It rose very slowly through the first half of August and did not attain 14 pics* at Assouan before the 16th of that month; after that it rose rapidly, and on the 24th of August Assouan stood at 17 pics. It then fell and rose alternately until the 31st of August, when it stood at 16 pics 22 kirats. There was nothing in this to cause alarm, and the gauge diagram followed very closely that of 1890, which, as before mentioned, was a high, but not a dangerous, flood.

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* 1 pic = 21.29 inches.

Even up to the 4th of September it followed 1890 very closely, but, instead of falling on that date, as was the case in that year, it rose steadily until the 12th, when it reached 17 pics 21 kirats, the maximum gauge of 1887. It then fell until the 17th, when it again began to rise, and on the 20th attained the height of 18 pics. This was the last rise, and from that date the fall, although very slow, was steady.

NILE GAUGES USED IN THIS REPORT.

It will be noticed that in the above I have made no mention of the Wadi Halfa gauge, but I have confined my remarks to that of Assouan. I have done this for two reasons: First, we can not compare the Wadi Halfa readings with those of the years 1874, 1878, and 1887, because the new gauge which was erected in 1889 was never satisfactorily connected with the old one, and, second, because the Assouan gauge is the one which is understood by the people in this country. Were an Egyptian to talk of a high flood in any one year, he would not say that it rose to such a height at Wadi Halfa or at the barrage, he would say that it was a Nile of so many pics at Assouan and so many pics at Rodah.

COMPARISON OF THIS YEAR'S FLOOD WITH THOSE OF PREVIOUS YEARS.

The three preceding high floods about which we have sufficient information to enable us to compare them with that just past are those of 1874, 1878, and 1887. We know that there were disastrous floods in the years 1861, 1863, 1866, and 1869, but our information concerning them is scanty and not very reliable—certainly not sufficient to enable a fair comparison to be made.

In comparing the flood of this year with those of the three years above mentioned, I will take only the Assouan and Rodah gauges as my standards of comparison.

A Nile flood is considered to be a dangerous one in Egypt when the Assouan gauge rises above 17 pics and the nilometer at Rodah registers a height above 24 pics. The danger to the country is, of course, proportionate not only to the height that the river rises above these gauges, but to the length of time that it continues above them and the date on which the maximum is reached.

We find, then:

I.—River above 17 pics at Assouan.

Year.	From—	To—	Number of days.
1874	Aug. 13	Sept. 26	45
1878	Sept. 8	Oct. 11	34
1887	Aug. 14	Sept. 22	40
1892	Aug. 24	Oct. 1	39

II.—River above 24 pics at Rodah.

Year.	From—	To—	Number of days.
1874	Sept. 8	Oct. 24	47
1878	Sept. 23	Oct. 31	39
1887	Sept. 11	Oct. 13	33
1892	Sept. 19	Oct. 31	43

From the above it will be seen that the floods of 1874 and 1877 were early ones, while that of 1878 was a very late one; the present year lying midway between 1874 and 1878.

Carrying on the comparison still further as regards the height to which the river rose at Rodah we get:

III.—River above 25 pics at Rodah.

Year.	From—	To—	Number of days.
1874	Sept. 14	Oct. 18	35
1878	Sept. 29	Oct. 23	25
1887	Sept. 22	Sept. 27	6
1892	Oct. 1	Oct. 8	8

The highest recorded gauge in the above years was:

Year.	Assouan.		Rodah.	
	Date.	Height.	Date.	Height.
		Pics. Kir.		*Pics. Kir.*
1874	Sept. 6	18 4	Oct. 5, 6	26 12
1878	Oct. 1	18 12	Oct. 11	26 6
1887	Sept. 1	17 21	Sept. 25	25 2
1892	Sept. 20	18 0	Oct. 2–7	25 2

The recorded maximum gauges of 1874 and 1878 are appallingly high, but it is more than probable that they are exaggerated and incorrect. The maximum barrage gauge readings of 1874 and 1878, when compared with the maximum gauge of 1887, show a difference far inferior to that shown at Rodah, and the barrage is only 30 kilometers below Rodah.

Year.	Rodah maximum.	Barrage maximum.
	Pics. Kir.	*Meters.*
1874	26 12	18.6
1878	26 6	18.57
1887	25 2	18.31

Thus, although in 1874 the Rodah gauge shows a maximum of 1 pic 10 kirats (or 0.75 meter) above the maximum of 1887, the barrage gauge only shows the difference as equal to 0.39 meter.

Again, in 1878 Rodah shows an excess height over 1887 of 1 pic 4 kirats (or 0.63 meter; the barrage gauge only gives an excess of 0.26 meter.

Working on the above lines, it may then be assumed that the maximum height reached at Rodah was 25 pics 15 kirats in 1874 and 25 pics 14 kirats in 1878.

A close examination of the gauges leaves little doubt that in 1874 and 1878, when the Nile at Cairo attained 24 pics, half pics were read on the Rodah gauge for all heights above 24 pics, just as they are for heights below 22 and above 16. In 1887 and 1892 all the pics above 22 have been whole pics.

The last point to be compared, and in many ways the most important of all, is the date on which the maximum gauge is reached at Assouan. The "Salib" of the Nile, or the date on which the fall of the river is supposed really to begin, and the "Sarf," or basin-emptying, to commence, is the 26th of September.

CONTENTS OF AND DISCHARGE OF BASINS.

There are, roughly speaking, some 9,000,000,000 cubic meters of water stored in the Upper Egypt basins in a high-flood year. This water has to be discharged again into the river, and it is most important that this emptying should be begun in the southernmost basins as soon after the "Salib" as possible, otherwise the hot weather will dry up the crops before the grain has ripened.

The operation of "Sarf" takes from about twenty days in an ordinary flood to forty days in a high flood. Even passing it off at the latter rate, it means that some 250,000,000 cubic meters of water per twenty-four hours are added to the already overcharged river, and if, as often happens, a basin or chain of basins should burst into the river, the discharge would be greatly increased and the gauge at Rodah would in consequence rise considerably.

I hope I have made it clear in the above remarks how important it is that the maximum gauge at Assouan should be reached early in the flood, and that the river should begin to fall before the "Salib" date is reached, both in order to enable the basin to empty in time to secure the crop being sown and also to prevent the basin water being added to an already overfull and perhaps a rising river at Cairo.

FINAL COMPARISON OF THE LAST FOUR GREAT FLOODS.

Comparing, then, the floods of the four years under discussion, we find that although in 1874 the gauge actually stood for a longer period over the dangerous heights of 17 pics at Assouan and 24 pics at Rodah, yet that the maximum was reached on the 6th of September, which allowed for a twenty days' fall in the river at Assouan before the "Salib."

In 1878, on the contrary, the maximum was not reached at Assouan until the 1st of October, and in consequence the river continued to rise at Cairo until the 11th of October.

In the present year the flood was also a late one, and in this lies its chief danger; the maximum at Assouan was not reached until September 20, and it did not begin to fall at Cairo until October 8. In this way it was a very much more serious flood than that of 1887, which began and ended early—at so early a date, indeed, that the maximum gauge of 1887 was reached at Cairo on the 25th of September, or one day before the "Salib."

I should then put those four floods in the following order of importance: 1878, 1892, 1874, 1887.

I put 1892 before 1874 for the reason that it was some fourteen days later, even though it did not rise to so great a height.

One great difference between the floods of 1887 and 1892 and those of any previous years is that they are the only two years on record in which the Nile at Cairo has risen over 24 pics, or 18 meters, at the barrage, and yet no breach of the banks has taken place or any disaster occurred.

DAMAGE DONE BY PREVIOUS FLOODS.

Sir Colin Scott Moncrieff, in his note on the flood of 1887, has detailed the damage that was caused by the high floods of previous years, so that there is no need again to record it. It will suffice to say that in each of the floods of the years 1861, 1863, 1866, and 1869 serious breaches occurred, causing great damage to the country. In 1874 breaches occurred on both the Rosetta and the Damietta branches, while in 1878 this was not only repeated, but on the latter branch occurred the Mit Badr Halawa breach, whereby serious loss of life occurred and the water lay over the country for some six weeks.

PRECAUTIONS TAKEN DURING PRESENT YEAR.

On the 11th of September, when it became evident that a dangerous flood was inevitable, all officers of the irrigation department on leave at the time were recalled, and the mudirs were all warned that special precautions would be necessary. On the 10th of September the decree of the 9th of September, 1887, was put in force enabling the Government to call out, if necessary, all persons fit for work to assist in protecting the banks.

Measures were taken to insure a sufficient supply of materials for the protection and repair of the banks, large quantities of stone were sent down by boat, and a constant supply of this material was kept up until the danger had passed. Sacks and wooden stakes were also bought and distributed at different sites along the banks. The measures that we had found useful in 1887 were again repeated, and the lengths of bank were divided into sections which were regularly patrolled by the engineers in charge, who had each a small steamer on which they carried a reserve of sacks.

CHIEF DANGER DURING HIGH FLOODS.

As in 1887, the chief danger during the rising flood lay in the Nile bank culverts, many of which are still constructed of most inferior masonry. In several instances during the past flood these culverts gave way under the high pressure they were called upon to withstand, and disaster to the country was only averted by the prompt and skillful measures taken to close them by the engineers and mudirieh officials.

Much has been done since 1887 to improve these culverts, but much still remains to be done. Article 24 of the canal act of 1890 empowers the irrigation department to force the native proprietors to repair their culverts, but many of them belong to Europeans, and these can not be touched by the act. Even with Egyptians it is exceedingly difficult to put the canal act properly in force, as the proprietors delay repairing them until the crop is in the ground and then raise a piteous lamentation as to the ruin that will attend the closure of their culverts. It will be most necessary in future to harden our hearts and take the matter up vigorously, for undoubtedly in every high flood these culverts constitute a very grave danger; and there is the additional drawback that they must of necessity be kept closed until the river falls, by which the crops adjoining are often damaged.

Another danger in flood time is a sudden action of the current upon a reach of bank which causes it to be cut away with the most dangerous rapidity. Careful training and a good system of spurs is the best way of preventing this, and, owing to the great improvements that have been made in this direction since 1887, the accidents of this sort that occurred during the present year were very much fewer than in the former flood.

Each of the irrigation circles has been steadily constructing spurs in the most dangerous reaches of the river, and, as I have said above, the good results have been felt this year; the budget allotment for this work in any one year is not, however, a high one, and it will take time to complete the whole system.

A third danger to the banks is caused by leaks through them and by the percolation causing the earth of the outer slope to become almost semiliquid. The old borrow pits behind the embankments greatly increase this danger, but here again this year it was considerably less than in 1887, owing to the manner in which the banks have been yearly strengthened since the last flood.

DANGER ON DAMIETTA BRANCH.

As in 1887, the part of the river which in Lower Egypt caused the greatest anxiety was the Damietta branch. There is little doubt that the tendency of this channel is to gradually silt up its bed, and that, if left to itself, it would in time become extinguished in the way many other old mouths of the river have been obliterated in historic times.

The Rosetta branch, on the contrary, has a tendency to deepen and widen its channel, and it could certainly carry more water in flood time than it did this year without materially increasing the danger to the country.

I do not think anything can be done to prevent the Damietta branch gradually silting itself up, neither do I think it would be advisable to do so. What I think we should do is to endeavor to reduce the flood supply entering this branch through the barrage, and how best to do this, in my opinion, we must study. The section of its channel is in many places very contracted, particularly so to the north of Mansourah. There are many points like Mit Abu Harit, where the river takes a very sharp bend and has a very narrow and deep section. In such places, I think, it will be absolutely necessary to throw a chord bank across the angle and eventually let the river cut this angle away. It may also be possible, as Mr. Willcocks has suggested, to find a line running north to the sea through the waste and silted tracts, across which we might run parallel lines of banks at, say, 300 meters distance, and in dangerous floods allow the river to escape a portion of its excess water in this manner, thus increasing the "draw" on it and so lowering the water surface for some considerable distance further up. All these are questions that we must consider and study. Meanwhile the fact remains that this branch has never before (even in 1887) carried such high-level water without accident, a fact which says much for the excellent work done by those officers who were specially charged with its protection. I say "even in 1887," for, although during the present flood the maximum downstream gauge at the Damietta branch barrage was 0.12 meter less than the maximum reached in 1887, yet the 1887 flood marks put in by us all down the bank were this year all covered. Consequently the flood level throughout its course was a little higher in 1892 than in 1887.

MAXIMUM DISCHARGE OF RIVER IN PRESENT YEAR.

The discharges of the river during the great flood have been carefully observed by the director-general of reservoirs. The highest observed discharge at Cairo was 900,000,000 cubic meters, and from the velocities observed at the barrage the discharges of the two branches are about—

	Cubic meters.
Rosetta branch	540,000,000
Damietta branch	310,000,000

I allow 50,000,000 for discharge of canals taking off upstream of barrage.

The highest observed discharge south of Assouan was some 1,300,000,000 cubic meters per day; thus leaving the enormous volume of 400,000,000 cubic meters per day to be accounted for by the basins and by the spill channels and wide berms of the river. These latter, in a year like the present, absorb a large quantity of water, though in an ordinary flood their action is limited.

DAMAGE DONE TO CROPS IN THIS AND PREVIOUS FLOODS.

The damage done to crops by the past flood was comparatively small, less even than in 1887, and, as compared with the loss that occurred in previous high floods, hardly worth mentioning.

Unfortunately, previous to 1887 we have no reliable figures either as to areas flooded or as to crops lost.

DAMAGE DONE BY FLOOD OF 1878.

We know that in 1878 the whole of the Nile Valley south of Wasta was one vast sheet of water, all basin banks having been cut or broken through, and the railway line in Upper Egypt having practically been wiped out of existence. We know, also, that at Bedreshin the river burst its banks and flowed over the whole of the Gheezeh province, finding its way back into the Rosetta branch, north of the barrage, across the Rayah Behera.

We know that in the same year in the delta, the Damietta branch breached at Sharabas, on the east bank, and again at Mit Badr Halawa, on the west bank, which latter breach, as has been before stated, caused very serious loss of life and property. Lastly, we know that in the Rosetta branch the Nile banks gave way at Dessuk, on the east, and again between Khatatbeh and Kafr Zayat, on the west.

The above facts, we, as I say, know, and they are, I think, sufficient to prove how disastrous the flood of 1878 was to the country, even though we can give no figures as to the areas of crops destroyed.

CROPS DESTROYED IN 1887.

In 1887 we have some figures as to the damage done, and I propose to compare them with those of the present year.

Table showing areas of crops destroyed in 1887.

Provinces.	Nature of crop.	Area.
		*Feddans.**
Keneh Esneh	Dura	30,000
Girgeh	do	5,440
Assioot	do	945
	Sugar cane	621
Minieh	Dura	1,150
	Sugar cane	354
	Cotton	40
Beni-Souef	Dura	480
	Cotton	22
	Sugar cane	5
Total		39,057

* The feddan is nearly equivalent to an English acre.

The figures for Esneh and Keneh are only approximate; in reality, the Nile and basin banks practically disappeared in these two provinces, and the river flowed in one sheet between the highlands. I have no figures for the province of Gheezeh for 1887.

The above areas are only for crops lying inside the Nile banks, that is, "protected" crops. They do not include those on islands or unprotected foreshores lying outside the Nile banks, on which the people cultivate at the risk of losing their crop if the flood rises over 17 pics at Assouan.

CROPS LOST IN PRESENT YEAR.

The following are the figures for the present year, as far as I have been able to obtain them from the mudirs and from Maj. Brown:

Province.	Nature of crop.	Area.
Upper Egypt		*Feddans.*
Esneh	Dura	4,622
Keneh	Sugar cane	222
	Gardens	4
	Vegetables	15
Girgeh	Dura	87
Assioot	do	225
	Sugar cane	125
Minieh	Dura	860
	Sugar cane	846
	Simsim	40
Beni-Souef	Dura	652
	Sugar cane	3
	Cotton	2
Total Upper Egypt		7,703
Lower Egypt.		
Giseh	Dura	397
Kaliubieh	do	150
Grand total		8,250

In the above the area of Keneh and Esneh is about half the total number of feddans. Nearly the whole of this dura was, however, in isolated patches in the middle of the basins and surrounded with small banks. This practice is a bad one, which does not exist in the northern provinces. It stands to reason that when the basins reach a level at all beyond the ordinary full supply level, as in a year like this they are pretty sure to do, these small banks must go; in fact, the proprietors always undertake to cultivate these plots entirely at their own risk.

The area lost in Kaliubieh was that caused by the bursting of the regulating timbers at the head of the Bassusia Canal.

It must be remembered that even when crops are destroyed, as has been the case in Upper Egypt this year, there is almost always considerable compensation to the owner in the fact that he gets a supply of the rich Nile mud upon his lands, and that in consequence the yield of the lands will be greatly increased in the next season.

"SARF" OF BASINS.

It was originally arranged with Maj. Brown, inspector-general of irrigation in Upper Egypt, to commence the "Sarf," or emptying, of the southernmost basins on the 5th of October; but, as both Rodah and Assouan were high on that date, it was postponed until the 8th, when Assouan had fallen to 16 pics 7 kirats and there had been a heavy fall at Wadi Halfa.

Maj. Brown managed the whole operation of the "Sarf" with the greatest skill and care, so arranging it that the emptying of the basins was steadily carried to an end, and yet the extra water coming into the river never caused the Rodah gauge to rise more than 5 kirats, and this rise was only continued for six days. By the 5th of November the "Sarf" of everything south of Beni-Souef was practically completed, and even in the latter province the water was falling steadily with the river and sowings had commenced in the higher portions of the basins.

BERIBERI.

REPORT BY CONSUL WILDMAN, OF SINGAPORE.

One of the most loathsome diseases of the Asiatic coast is beriberi. It is seen among the Chinese population of Singapore in its most advanced stages. It and leprosy are the two most horrible diseases of these latitudes.

In conjunction with the consular surgeon, Dr. E. W. von Tunzelmann, who was at the same time colonial surgeon, in charge of the Tan Tock Seng Hospital, I have made a study of these at present peculiarly Asiatic diseases. In my opinion, the medical fraternity of our country should pay more attention to the study of both leprosy and beriberi, as at any moment they may find a foothold on the Pacific coast and sweep off thousands. I have the honor to submit our researches into the cause and effect of beriberi and experiments made by Dr. von Tunzelmann in its treatment.

Among the 600 or 700 patients, mostly Chinese, always under treatment in the Tan Tock Seng Hospital, at Singapore, the largest hospital in the Straits Settlements, there are always a large number suffering from beriberi, a disease unknown in Europe and America, and one, therefore, much less studied than its importance and the havoc it works on a large section of humanity calls for.

DEFINITION.

It may be defined as a chronic, noncontagious, zymotic, disease characterized clinically by the occurrence of œdema, paralysis of muscles, and sensory disturbances, and each varying infinitely both in degree and in distribution, and pathologically by the presence of widespread degeneration of the peripheral nerves.

CAUSES.

The disease is endemic throughout the Malay Peninsula and a great part of the archipelago, in certain parts of Hindostan, and in Japan—countries which are either tropical or in which the temperature for a portion of the year is continuously high, as in Japan. It prevails especially in low, humid districts with a large rainfall. Any disturbance of the soil in such district, *e. g.*, as in clearing jungle, is apt to be followed by a severe outbreak of the disease. It attacks only such persons as have resided for a considerable period in places where it is prevalent, newcomers being unaffected for at least a month or six weeks.

Women are very much less liable to it than men, though by no means entirely exempt; their comparative exemption is due largely to their not being nearly so often exposed to the exciting cause as are field coolies, miners, etc., who are the chief sufferers, though this seems not to be the sole reason. The fact that the active periods of life—from puberty up to 40—are those of greatest liability to the disease is similarly explicable. I have never seen it before puberty. One attack predisposes to another.

The exciting cause of the disease is almost certainly a microbe. Prof. Pekelharing, of Utrecht, head of the Dutch commission for the study of beriberi in the Netherlands Indies, claims to have cultivated from the blood of beriberi patients a specific micrococcus, forming white colonies, which, when injected repeatedly into rabbits and dogs, caused symptoms and post-mortem changes similar to those of beriberi in man, viz, paralysis of the hind limbs and nerve degeneration. His researches, however, require confirmation. There is abundant evidence that the poison is usually air borne; it appears sometimes to be conveyed on fomites, and the fact that it may cling obstinately to buildings and to ships, attacking batch after batch of healthy men quartered in such, and that such structures can be purified by use of germicides, are strongly in favor of its microbe nature. It appears to have little power of multiplication within the human body, continual fresh doses of the poison being necessary to maintain the disease; and there is no reason for believing patients to be infectious.

The disease has been attributed to unwholesome food, especially spoilt rice, to overcrowding, intestinal parasites, to malaria, scurvy, etc., but are quite inadequate grounds. Bad food, overcrowding, and other causes of impaired nutrition are, without doubt, predisposing causes. Race, *per se*, is without influence, though the better-fed European is much less affected than the poorly fed Asiatic.

PATHOLOGY.

Usually there is some serous effusion in the subcutaneous areolar tissue and in that of the deeper organs; often there is a great deal. The pericardium usually contains an excess of fluid, sometimes an enormous excess. Pleuritic and pentoneal effusions are less common. Occasionally the lungs are œdematous. Frequently there are ecchymoses on the serous membranes, produced in the death agony, asphyxia being the common cause of this. The muscles may be swollen and streaked here and there with fat, or they may be yellowish, brown, and atrophied.

The right heart is, as a rule, dilated and hypertrophied; much less often the left heart is similarly affected. The abdominal viscera, beyond venous congestion, show nothing beyond what is usually found in autopsies in the tropics—malarious changes in the spleen and liver, parasites in the intestines, etc. The nervous system shows no naked-eye changes.

Microscopic changes in the nervous system are, however, well marked and characteristic. Briefly, the various stages of Wallerian degeneration are invariably to be found in the peripheral nerves, usually most advanced in those of the lower limbs, notably the peroneal and anterior tibial; the medullary sheath being broken up or, in advanced stages, almost vanished; the sheath of Schwann thrown into folds; the interannular nucleuses multiplied, forming fusiform thickenings, etc.; the proportion of their fibers is also markedly increased. These changes become less marked as the central nervous system is approached, and the described changes in the spinal cord are insignificant.

SYMPTOMS.

The key to the infinitely varied symptomatology of beriberi is to be found in the facts (1) that the primary and characteristic symptoms are due to impaired or totally lost function of the peripheral nerves, and (2) that almost any nerve may be affected, though some are much more liable than others. The stress of the disease may fall on the vasomotor and cardiac nerves, producing œdema, variously distributed, cardiac affections, œdema of the lungs, etc., and their respective consequences, or on the motor and sensory nerves, or irregularly on both. Correspondingly they are two well-marked clinical types, dropsical and atrophic, connected by intermediate forms.

The onset of the disease is always gradual; the earliest detectable signs are (1) lessened irritability of certain motor nerves and muscles, particularly the peroneal nerve and the muscles it supplies, to both the continuous and the interrupted electric current; and (2) increase in the diameter of the tactile areas over a limited portion of the calf of the leg, associated with a subjective sensation of heaviness in the legs. There occur (1) slight œdema along the crest of the tibia and (2) a swollen, pasty appearance of the face. The tactile sense in the lower limbs becomes much diminished; and various paraesthesiæ occur—formication tingling, etc. The patient complains of palpitation, the pulse quickens markedly on the slightest exertion, and slight increase of cardiac dullness toward the right can be made out. There is usually an unpleasant sensation at the epigastrium, variously described as "fullness," "sinking," "aching," etc., sometimes actual pain, probably due to degeneration affecting the abdominal distribution of the vagi.

Œdema is usually most marked in the lower limbs; it begins, however, above the ankles, showing that it is not cardiac; often a distinctly limited area of œdema of a few square inches may be seen in the upper part of the leg. The upper limbs may be more affected than the lower ones, and the œdema may be unilateral, being then often associated with distinct differences in the radial pulses, made very evident by the sphygmograph. The œdema at first is soft, but, if it lasts long, may become very hard and brawny. General œdema is not uncommon; it is usually associated with cardiac failure.

Anæmia, though often present, debilitated persons being more liable to beriberi, is not in itself a symptom of the disease.

Temperature.—This is very variable, and in no way characteristic. As most beriberi patients have been exposed to the exciting causes of malaria, they very commonly have pyrexial attacks of very variable type. The disease is never ushered in with fever. Heart failure is often associated with subnormal temperature, though not always. In very chronic cases of beriberi, with extreme and widespread wasting of muscle, the temperature is often subnormal and readily influenced by external conditions.

Nervous system.—The nerve trunks are often very tender and painful on pressure. Violent shooting pains are often experienced, painful starting of muscles, and various paraesthesiæ—tingling formication, etc. The tactile sense may be quite lost, sometimes over a very wide area. The temperature sense is usually defective. These subjective phenomena are very difficult to investigate in Asiatic patients through the medium of an interpreter. The cremasteric, abdominal, and epigastric reflexes are usually present. The knee jerk is nearly always lost early; occasionally it persists. It has once been seen slightly exaggerated. Patients discharged as cured and subjectively quite strong and well are usually found to have no knee jerks. The muscles may be swollen, hard, and painful on pressure, or later much atrophied and painless. Paralysis is usually most marked in the area of the peroneal nerve, rarely in the upper limbs. Sometimes a condition very like the wrist drop of palsy is observable in these latter. There is at first lessened, and then completely lost, irritability of both muscle and nerve to the interrupted current, and diminished irritability of both to the constant current. The paralytic phenomena are, of course, as infinitely varied as is the distribution of the paralysis. The grasp of the hand is much weakened, the fine movements of the fingers being usually lost early. The gait is noncharacteristic, depending on the muscles affected. Any muscle may be affected. The sternomastoid, pectoralis major, and trapeziums, however, are very rarely affected. The flexors of the knee, the adductors and flexors of the thigh, and the biceps cubital are among the last to be affected. The eyeball and tongue muscles usually escape. The laryngeal muscles very commonly suffer. The diaphragm may be paralyzed; the intercostal muscles; rarely the muscles of the abdominal walls.

Dr. von Tunzelmann says he has never seen the sphincters affected, nor the iris. The visual and auditory nerves always escape; taste and smell are more difficult to test in natives, and he attaches little value to occasional apparent absence of one or the other of these senses.

Circulatory system.—Dilatation of the right heart is very common, evidenced clinically by angina, palpitation, and by the usual physical signs. The pulse is often very frequent, occasionally very infrequent; differences in the radial pulses are common.

Respiratory system.—Œdema of the lungs is a not uncommon late phenomenon, sometimes preceding death a few days, more often a few hours.

Digestive system.—This affords no symptom of importance. Gastric crises, with vomiting, sometimes occur analogous to those of locomotor ataxia. In the early phases of the disease there is usually constipation.

Urinary system.—As a consequence of cardiac failure, the urine may be extremely scanty.

SYMPTOMS OF EXACERBATION.

Occasionally beriberi, in a very early stage, when the patient hardly knows he is unwell, may undergo a sudden exacerbation, with pyrexia and violent cramps and pains in the muscles, which then rapidly atrophy. If the respiratory or cardiac muscles be thus affected death may occur in a few hours.

SEQUELÆ.

When all active manifestations of the disease have ceased, the degeneration and wasting of muscles consequent on irreparable injury to the nerves may still progress, sometimes to absolute paralysis, with various distortions. Similarly the dilated and hypertrophied heart may fail to recover itself, and the patient gradually succumbs to slowly progressing general œdema, the process sometimes being extremely chronic and the proportions attained by the bloated body almost incredible.

CAUSE OF DEATH.

The causes of death are mainly three—(1) cardiac failure, (2) respiratory paralysis, and (3) œdema of the lungs. Possibly pericardial effusion is an occasional cause; it is rarely sufficient in bulk for the purpose. Occasionally, also, a patient seems to die, with falling temperature, simply because he has insufficient muscle to supply his heat requirement.

COURSE.

The disease is essentially chronic, its duration being never less than five or six weeks, more often three to four months.

DIAGNOSIS.

In the earliest stage the diagnosis can only be made by aid of the electric current. Later there can be no difficulty.

PROGNOSIS.

Seeing how high is the mortality and how grave the accidents to which the beriberi sufferer is liable, the prognosis must always be serious. The immediate prognosis depends, of course, upon the character of the nerves involved; the ultimate prognosis upon the number and extent of the lesions, the resistive powers of the patient, and extraneous conditions.

MORTALITY.

The following table shows the mortality:

Year.	Number of patients in hospital on Jan. 1.	Number admitted during year.	Total treated.	Cured.	Died.	Average cured.	Average mortality.
1887	60	193	253	159	59	62.84	23.32
1888	35	204	239	148	65	61.5	27.19
1889	26	215	241	115	84	47.71	34.85
1890	42	347	389	129	164	33.11	42.59
January to July, 1891	96	224	320	166	62	51.87	19.37

These high death rates are in all probability above the average. This is due largely to the fact that the Tan Tock Seng Hospital is in a very unhealthy situation, practically in a marsh, and in part, also, to the fact that the inadequate medical staff makes it impossible to give due individual attention to so large a number of patients.

TREATMENT.

The most important items of this are: (1) The removal of the patient as speedily as possible from the place in which the disease prevails, so that he may receive no fresh doses of the poison; and (2) the supplying him with as abundant a nitrogenous diet as he can assimilate. The complete disappearance of beriberi (or "kakké," as it is termed in Japan, from the Japanese navy) concurrently with an improvement in diet, which previously was deficient in proteids, is a most remarkable fact; doubtless other factors, *e. g.*, the sanitary and disinfecting measures simultaneously resorted to, had some share in producing this happy effect. At the Tan Tock Seng Hospital the addition of 3 ounces of wheat flour to the diet of every beriberi patient, which was done in December, 1890, coincided with a remarkable fall in the death rate, which was maintained up to September, 1891; the relation is probably one of cause and effect, though here again I think other factors have aided. As regards drug treatment, no drug seems to be of much use, except such as obviate the ill effects of those dangerous crises, particularly cardiac failure, so common in this disease. Among these drugs nitroglycerin is preëminently useful; in cases of acute engorgement of the lungs, probably due to sudden vasomotor paralysis, it often averts a fatal issue by the hydrostatic effects of the general dilatation of peripheral arteries which it causes. As a heart tonic comparable to alcohol, it seems to one to be even more useful, only the doses must be frequent, at least every hour. In cases of gradual heart failure, in which the pulse becomes sometimes very frequent and very small, sometimes infrequent, small, and irregular, with increasing œdema and falling temperature, digitalis is found of great service. As the doses required—from half a dram to 1 dram of the tincture every three hours or oftener—often cause vomiting, recourse to digitalis subcutaneously has often been had with marked success. Strophanthus has been found much less effectual.

In the chronic afterstages, when all muscular tenderness has ceased, the hypodermic injection of liquor of strychnine in doses of 1 to 3 drops as often as required seems to accelerate the processes of repair; it is also useful occasionally when there are symptoms threatening respiratory paralysis.

The muscular tendencies of the earlier stages seem sometimes to be relieved by small doses of iodide of potassium and tincture of aconite; but, as the evidence is based entirely on subjective signs, it is open to question.

As regards other treatment, the judicious use of laxatives, stomachics, etc., only requires mention.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, May 1, 1892.

WATER CONSERVATION IN NEW SOUTH WALES.

REPORT BY COMMERCIAL AGENT BAGGS, OF NEWCASTLE.

I herewith transmit two articles on water conservation in New South Wales, taken from the Sydney Morning Herald of the 5th and 6th of September last. The first article deals with a bill about to be submitted to the New South Wales parliament on the above subject, and also generally with what has been done in the past toward that object. The second article deals with artesian boring, describing the different wells, their depth and daily flow, and also a detailed list of the contracts entered into by the government for other wells.

GEORGE T. BAGGS,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Newcastle, October 7, 1892.

PROGRESS OF SURVEYS AND WORKS.

[Inclosure 1 in Commercial Agent Baggs's report.—From the Sydney Morning Herald of September 5.]

Among the measures which will probably be submitted to parliament during the ensuing session is one dealing with the question of water conservation in New South Wales. The bill, which is in the hands of Mr. Lyne (minister for works), is now undergoing final revision. Until lately it was frequently stated that the development of the colony was not sufficiently advanced for the use of irrigation as an aid to agriculture, and that, in short, irrigation would not give a remunerative return. This question, however, is now set at rest by the fact that irrigation has already been practiced with success in almost every part of the colony. For some time past steady progress has been made in the knowledge of the benefits of irrigation and the methods best adapted to particular circumstances. The bill which Mr. Lyne has in hand is a long and comprehensive one, and deals with the question in a thoroughly practical manner. The bill is divided into ten parts. The first part is simply preliminary. The second part deals with water rights generally, and in it an attempt is made to settle the troublesome question of "riparian rights" that has so long been a block to anything tangible being done, the matter being dealt with most thoroughly. The third part of the bill provides for national administration by a board; but "centralization" is carefully guarded against, and in the succeeding part district administration by local trusts under the board is arranged for. Part 5 deals with drainage works, and it may be mentioned that it is intended that the present drainage act shall be repealed. The navigation of the rivers in the colony is regulated by part 6; and it should be mentioned that this matter will come within the jurisdiction of the general board, and not of the local trusts. No system of irrigation in the colony can, of course, be carried out without money, and the seventh part of the bill is devoted to financial matters. There are numbers of clauses which provide for the issue of loans and their repayment. The eighth part of the measure deals with claims for compensation, which are sure to arise when it is attempted to enforce the act. The following part relates to offenses and penalties, and the remainder of the bill gives power to make regulations affecting drainage. The measure is one of a most beneficial character. It is one which should not be dealt with in a party spirit, and it is to be hoped that the only object members will have in view in discussing it will be to try and insure that it shall be made as perfect as possible.

But, while the bill raises "great expectations" as regards the future, it must not be supposed that nothing has been done in the past; and the present juncture may be regarded as favorable for referring to the work that has already taken place. It will be remembered that some years ago a royal commission on the conservation of water was initiated by and presided over by the present minister for works. The commission, among other things, expressed the opinion that on water conservation mainly depended the prosperity and development of the whole extent of the central and western divisions of the colony; that the great object of water conservation was for irrigation; and that legislation on the subject of water rights was a matter of pressing necessity, both to protect the rights of the state and to foster and encourage local and private enterprise. The report in which these conclusions appeared was published in May, 1887, but the formation of a water conservation department was not sanctioned until the beginning of 1890. Previous to that date work could only be conducted on a limited scale, but the progress then made included surveys of the district lying between the Murrumbidgee River and the Billabong Creek, including Lake Urana—an extent of 150 miles in length by a width generally of from 30 to 60 miles. Since the formation of the department was authorized the preliminary surveys have been completed in connection with the Murrumbidgee and Murray rivers, almost completed on the Lachlan and Macquarie, and well advanced on the Namoi, Gwydir, and Darling. The extent of country covered by these surveys amounts to 60,000 square miles. The main object in the work is to show in what manner and to what extent the waters of our western rivers can be conserved and utilized. In whatever manner or by whatever agency the great works proved to be practicable are eventually carried out, the surveys now approaching completion must form the groundwork. These show beyond question that canals which will afford an abundant supply of water during the spring months for irrigation through the great fertile plains of southern Riverina are not only practicable, but can be carried out under exceptionally favorable conditions so far as engineering difficulties are concerned. The gauging of the rivers, which has been systematically carried on, proves that the supplies of water available from them are much more valuable than was generally supposed; and the practicability of converting Lake Urana, on the south side of the Murrumbidgee, and Lake Coolacumpania, on the north side, into immense storage reservoirs has also been established.

In the cases of the Lachlan and the Macquarie the surveys have shown how, by systems of weirs, the surplus waters of these rivers can be diverted into the back country at a comparatively moderate expense. One weir has been constructed on the River Lachlan, at the head of the Wallandra Billabong, and this will have the effect of diverting a portion of the flood waters to a distance of more than 100 miles in a direct line from the river, thereby materially affecting the value of 80,000 acres of Crown land, besides giving a practically permanent water frontage throughout a length of creek amounting to considerably over 200 miles. The surveys of the Namoi and Gwydir districts are incomplete, but enough has been done to show that the treatment which should be adopted on these rivers will require to be similar to that already indicated as most suitable for the Macquarie and the Lachlan. The levels in the Namoi district have been connected with a site for a storage reservoir which was brought to the notice of the water commission. The surveys are not sufficiently advanced to permit of a conclusion as to the practicability of utilizing this site, but the levels so far are favorable. If a dam can be constructed at a reasonable cost, the quantity of water stored during floods will afford an extensive and valuable supply when the river is low. On the Lower Darling the surveys and levels are well advanced, and show that enormous benefits can be conferred by the construction of weirs in that river. A weir near Wilcannia will regulate and augment the supply passing down the Lower Tallywalka, and another near Menindie will fulfill the same purposes in regard to the Great Ana branch and will have an enormous effect in making this large district fit for settlement. Levels have been taken connecting the series of lakes which obtain a precarious supply of water under existing conditions from the Lower Tallywalka and the Great Ana branch, respectively, and the relative values of these lakes have been ascertained. The surveys on the Upper Darling are not so well advanced; but lines of levels have already connected Lake Narran and the Bokhara, Bini, Culgoa, Warrego, and Paroo rivers with the Darling.

The works which have been carried out in the absence of legislation are necessarily comparatively small, but their importance is by no means to be measured by their cost. The Willandra weir, already referred to, and the dam across the River Lachlan, together with the improvements of the Willandra Billabong now in progress, will not cost more than about £10,000—a sum quite insignificant compared with the benefits derived from the outlay, and small, too, compared with the amount previously spent by pastoralists at that place with the same object in view. The improvement of Yanko Creek is another work of the same class, and here, too, the outlay is trifling compared to the results accomplished. In its natural state the flood water of the Murrumbidgee did not cause a flow in the Yanko Creek till the height on the gauge at Wagga Wagga was about 7 feet 6 inches. Now the water begins to flow in the Yanko Creek when the height at Wagga exceeds 1 foot. This means that the rich district through which the channels of the Yanko and Colombo Creek pass will have flowing water as a rule during at least half the year.

The cost of the surveys done up to date may be roughly divided as follows: Murray, Murrumbidgee, and Lachlan, area embraced in the surveys taken, 26,900 square miles, at a cost of £11,760; Lower Darling River, area 17,100 square miles, at a cost of £5,500; Bogan and Macquarie, with a small portion of the Upper Darling, area 12,700 square miles, at a cost of £5,600; Gwydir and Namoi, area 3,300 square miles, at a cost of £2,800. The total cost of the work has thus been under £26,000.

The department, since it was formed in 1890, has been under the charge of Mr. H. G. McKinney, chief engineer for water conservation, whose endeavor has been to do as much useful work as possible at a small cost. The attention of the department has also been occupied to some extent during the last year with the construction or investigation of works for water supplies to mining towns. The principal work of this character which has been completed is the water supply to the town of Hillgrove, and another water supply which was completed was that for the mining township of Sunny Corner. It only remains to add that Mr. Lyne has for years taken great interest in the matter of water conservation. Under the powers which will be given by his bill important works already commenced—the chief of which are enumerated above—will be completed, and good should result to the country at large.

ARTESIAN BORING.

[Inclosure 2 in Commercial Agent Baggs's report.—From the Sydney Morning Herald of September 6.]

Any reference to water conservation in New South Wales would be incomplete without the subject of artesian boring being commented upon. Great strides have been made in this direction during the last few years, not only because of action taken by the government, but also by reason of private enterprise. Administration now rests with the tanks and wells department. It is under the supervision of Mr. Slattery (minister for mines), and the officer directly in charge is Mr. James W. Boultbee. The extent to which artesian boring has been resorted to in the colony may not be generally known. In the Bourke district alone over fifty wells have been sunk, and more than two-thirds of them have been successful. The government has now twenty contracts let for borings, most of them being in this district. Many of them are yielding wonderful supplies of water, and in other instances it is believed that water will be struck before very long. In the present article it is proposed to give the latest information received by the department with respect to the various bores and the water obtained therefrom. So far as New South Wales is concerned, the project is still in an experimental stage. The department, however, is fully alive to the responsibilities which are cast upon it, and careful note of all data upon the subject is being taken with the view of subsequent legislation. As in our own colony, the work in Queensland is yet comparatively in its infancy. There is no legislation dealing with the works in existence.

It may be asked what kind of legislation is needed. In reply to this question, the department points out that, although the water when found may sometimes shoot up 60 feet in the air, as it did in the Lisington bore, and although on the average it may rise from 12 to 22 feet above the surface, yet, judging from the "old wells of London" and from later experiences in America, this kind of thing can not go on forever. "Willful waste," our representative was informed, even in the matter of artesian wells, may be followed by "woeful want." In the draft of the proposed Colorado irrigation code it was provided that "no person controlling an artesian well shall suffer the water to flow to waste." Some provision of this kind appears absolutely necessary. So far as the government is concerned, action has already been taken. The department has recognized the importance of the regulation of the flow from artesian bores, and, by direction of the minister, a special regulating valve was designed and made for use at all the government bores. It is now hoped that owners of flowing artesian wells will recognize the importance of the subject and make provision for preventing the waste of the most precious commodity in the arid portions of the colony. Especially, it may be added, is this regulating valve necessary in cases where astesian water occurs at comparatively shallow depths and where the artesian basin is supplied by the local rainfall soaking into it. Some few owners of artesian bores have regulating valves in position, but the majority have not. Neither does the valve nor importance of it appear to be fully recognized. In America it has been found that the exhaustion of the supply is imminent and in our country the Goonery bore in five years decreased its flow from 1,000 gallons to 260 gallons per hour. Yet it is within the knowledge of the department that 16,000,000 gallons of artesian water are daily flowing to waste in New South Wales, while in southern Queensland the water wasted fully equals 15,000,000 gallons daily.

With reference to the origin of the artesian water of New South Wales, it may be stated that the area within which the artesian water lies is shut in the southeast by the great impervious barrier of the Paleozoic rocks which constitute the main dividing range, but to the north and west communicates and forms part of the artesian water formations of Queensland and South Australia; possibly on the southwest the artesian basin is hemmed in by a low ridge of impervious Paleozoic rocks extending from near Dubbo, by way of Nymagee and Cobar, to the Barrier Ranges. Possibly, however, a narrow outlet may exist in this sunken ridge, approximately underlying the present channel of the Darling River, and allowing the water in the artesian beds to escape underneath the tertiary deposits of the Riverina district to the ocean at the Coorong coast, near the mouth of the Murray River. Traced northward into

Queensland, the artesian basin is still bounded on the east by the same main dividing range and its various offshoots as far north as the Gulf of Carpentaria. It is estimated that, while half of the rainfall can be accounted for by evaporation and the natural flow to the ocean, there still remains a half that percolates into the pervious strata and replenishes to an enormous extent the existing artesian supplies. What, then, it may be asked, are our prospects? A glance at the maps which hang around the walls of the department gives a sufficient answer. This colony is not like America, where the supply is contained in isolated areas. Our cretaceous basin extends over an enormous area, embracing in New South Wales alone upwards of 28,000,000 acres.

In any legislation which may be proposed in the future it will probably be ordered that accurate records be kept of the strata and position in which water is found; that an analysis of the waters in all cases be made; and that all wells be properly cased. The water found in the Bourke district has hitherto been of good quality. So far it has been used chiefly for watering stock. Artesian water is, as a rule, suitable for irrigation purposes, and there seems to be no reason why this industry should not be an element of immense value in developing the northwestern portion of the colony, where the fertility and recuperative powers of the soil are so wonderfully illustrated by the growth of feed after rainfall at the proper season. Probably this question will arise when Mr. Lyne's water-conservation bill comes on for discussion. The department knows exactly the average quantity of rainfall required for the irrigation of crops. But there is one great drawback, that is, the cost. Artesian wells are, above everything else, an expensive luxury. The contracts vary from 19*s.* to 35*s.* per foot. Privately, therefore, the operation is limited to the few, and there is certainly truth in the remark of the officer in charge of the department that "there is a great opening for any enterprise that can devise a means for boring for artesian water at a cost that shall place it within the reach of all classes." Appended are particulars relating to the various bores, giving the depth reached and the quantity of water obtainable up to date:

Contract No. 1.—The Bourke bore was sunk near the trucking yards, with the understanding that the railway commissioners would bear half the expense if successful. The greatest difficulty was experienced in piercing the heavy drift beds, and no less than five holes were commenced, one of which reached a depth of 600 feet before the difficulties were overcome and a settled formation reached. This, however, soon merged into a formation which was pronounced by the government geologist to be bed rock, in which it was considered hopeless to persevere. However, in deference to the expressed local opinion, the minister directed the boring to proceed, with a view to placing the matter beyond all doubt, until 1,467 feet was reached, at which depth the bore was stopped and the bulk of the casing withdrawn.

The second contract embraces three bores on the Bourke-Barringun road and three bores on the Bourke-Hungerford road, as follows: Bourke-Barringun road—(1) Native Dog bore, 475 feet deep, supply about 2,000,000 gallons per diem; (2) Barringun bore, 1,711 feet deep, supply 150,000 gallons per diem; (3) Eungonia bore (in progress), depth 1,170 feet; Bourke-Hungerford road—(1) Youngerrina bore, 166 feet deep, supply 175,000 gallons per diem; (2) Yantabulla bore, 180 feet deep, supply 90,000 gallons; (3) Warroo bore, 385 feet deep, supply 30,000 gallons per diem. The supply is artesian. The contractors were the Petrolia Boring Company.

Contract No. 3.—Bore at Nyngan 750 feet deep, bottomed on Paleozoic rock. Supply subartesian, or a pumping supply of about 10,000 gallons per diem of fair stock water.

Contract No. 4.—Collarendabri to Angledool road, two bores; and Moree to Boggabrilla road, two bores. One bore is approaching completion at Moongulla and is now 2,456 feet deep. A good pumping supply of 50,000 gallons per diem has been obtained; but as the new Angledool station has obtained a good supply of artesian within the last few days, the contract will be extended from 2,500 feet to 3,000 feet if necessary.

Contracts Nos. 6 and 9 embrace five bores on the Ivanhoe to Menindie road and five bores on the Box Creek to Arumpo road, across from Darling to Lachlan. One bore in each contract is about 250 feet deep.

Contract No. 11 includes five bores on the Silverton and Lake Cobbham road. One bore in progress at Sandy Creek has a depth of 780 feet, and gives a pumping supply.

Contract No. 12.—The work not yet commenced, but at contract No. 13 two bores are being made on the Louth to Wanaaring road. The bore has been completed at the 25-mile peg; it is 803 feet deep, and provides a pumping supply of 11,000 gallons per diem at 30 feet from surface. and is bottomed on the bed rock. At the 46-mile peg the bore is 1,010 feet deep. The supply is 170,000 gallons per diem of artesian water, and is quite fresh. The contractor was Mr. William Pickering.

Contract No. 14.—Two bores, Milparinka to Wanaaring road, 1,563 feet and 1,703 feet respectively, in depth. These give a good pumping supply of 30,000 gallons. The work is proceeding, and artesian water is expected.

Contract No. 15 includes bores at the 75-mile peg and 101-mile peg, Wanaaring to Bourke road. The bore at the 75-mile peg gives a complete supply of artesian fresh water at the rate of 70,000 gallons per diem, the bore being 1,234 feet deep.

Contract No. 16 is the Kulkyne bore, on the Bourke to Wanaaring road. Work here is in progress. The depth reached is over 200 feet, but no water has yet been found.

SILKWORM CULTURE IN NEW SOUTH WALES.

REPORT BY CONSUL KAPUS, OF SYDNEY.

Mr. Charles Brady, of Sydney, New South Wales, has for upwards of twenty years devoted himself to establishing in Australia, and particularly in the colony of New South Wales, the production of silk and silkworm graine, and, although mulberry silkworms of various kinds had previously been introduced into this and other Australasian colonies, no one, before he so devoted himself, had succeeded in establishing this industry as a productive occupation in Australia.

The continued failure, after many attempts, to do so either by public bodies or private individuals pointed clearly to the necessity of systematic and earnest studies and of a series of investigations to ascertain and demonstrate the conditions under which success would be accomplished. After much inquiry, study, and reflection, seeing the immense importance of the subject to the world in general, Mr. Brady, in the year 1865, abandoned all other thoughts and occupations and devoted himself to bringing together materials from home and foreign sources, wherever procurable, to study, experiment, and master the whole subject in all its details and bearings.

One of the great difficulties in starting was to procure a thoroughly sound and healthy breed, as at that time no sound stock of even a single one of the many old kinds of valuable mulberry silkworms was procurable in Europe or in Asia. It was necessary to obtain from their native sources the best that actually existed, even though severely diseased, and to endeavor by a long, persistent course of investigation, experiment, and practice to free the best, or, indeed, any varieties or breeds from devastating disease, which then rendered silk husbandry in Europe with the old races peculiar to their several countries almost an impossibility.

In 1870 Mr. Brady succeeded in producing a very considerable collection of the finest silkworms, healthy and fully acclimatized in the colony; he also demonstrated the special means possessed in Australia by natural causes and influences of breeding out disease and producing healthy silkworm graine and of creating a stock sufficiently strong for export. The most important and remarkable result, however, of Mr. Brady's researches and experiments is his discovery relative to the hibernation of silkworms, which (being before then universally considered of an unvarying character) practically offered serious difficulties and objections to a general culture of silk until his discovery and test by experience showed them to be not inflexible characteristics, but to be subject within certain limits to the strictest control of the cultivator—a control which gives the rearer power to avoid the greatest (in Europe, as well as in Australia) risk in the rearing of silkworms, viz, the danger in spring of unduly backward or forward seasons and to select the most propitious weather, or the most convenient period of the year. This is a system easily carried out and peculiarly advantageous, because it greatly economizes the actual cost and expenses of labor, and also because it renders available—and at a considerable profit—much provision that heretofore was necessarily wasted and lost. An instance in illustration of the power gained of the controlment of certain peculiarities of hibernation is given in the faculty now at command of Australian silkworm husbandry to obtain and maintain daily—day by day for a lengthened period—a continuous rearing at any time and for any length of time desired, from the most valuable breeds (which are strictly annual only in their course), continuous crops of silk for so long a time during the year as good leaf may be growing or in a state fit for use.

The consequence of this faculty is a vast addition to the power of production and of results in crops for home use or for export. By reason of this prolonged and continuous experience are made possible an immensely increased economy of labor and greatly enhanced knowledge, skill, and expertness in the operatives employed, who, under this process, could obtain in a single year more experience than can now be obtained in Europe or elsewhere in a lifetime; and yet more, the superior opportunities presented by contemporaneous rearings under varied conditions in different portions of the colony (climate, soil, food, etc., being different) to improve breeds by judicious use of remarkable instances of excellence, improvements which may in wise and able hands create races as superior to European of modern times as those of Europe were to their ancestors of Asia, from whom they were descended.

In his evidence before a select committee of the legislative assembly of New South Wales, appointed on the 21st of December, 1891, for the purpose of inquiring into and reporting upon the services rendered to the colony in connection with sericulture by Charles Brady, Mr. Walter Scott Campbell, of the department of mines and agriculture, said:

> The magnificent silkworms belonging to Mr. Brady I saw at a most opportune time. They were in the most perfect state of health, very hardy, and were quite undisturbed by a heavy thunderstorm which occurred during my visit. I feel sure they have no trace whatever of any of the virulent diseases which are so fatal in other countries. They are thoroughly

acclimatized, and the dozen distinct Australian races, the remains of two hundred distinct varieties, are the result of years of patient labor, great expense, and extreme care in breeding and selecting, and must no doubt be of great value. At one time, before the European diseases were successfully checked, Mr. Brady obtained as much as £3 3*s.* ($15) per ounce for his healthy eggs (or graine) in France.

There are many varieties of mulberries growing in the plantation with great luxuriance and vigor, so much so that during one season, when a considerable quantity of food was required, some of the trees were pruned back four times and produced four crops of leaves, a most severe trial.

Dr. Bennett, writing in 1870, said:

> The well-known operations of Mr. Brady in the colony have already caused considerable attention to be directed to Australia, and the very remarkable system originated by that gentleman and carried on from time to time during several years under the observation of his society (acclimatization) of producing a succession of daily broods and crops of silk during a great part of our long season is highly encouraging. As a matter of fact, Mr. Brady has, by special culture of varieties of mulberries during the springs, summers, autumns, and winters of more than three whole years, succeeded in raising successive small crops of silk from annual mulberry silkworms daily for a period of upwards of one thousand consecutive days.

Mr. Brady wrote as follows to the colonial secretary of New South Wales in 1870:

> When I first engaged in this enterprise, I myself entertained some misgivings about the cost of labor. It was this very circumstance which set me to work to contrive means to obviate what might prove a serious obstacle to a commercial success in silk-growing in these colonies, and I devised the plan of multiplying the number of crops obtainable in a single season. In every country besides this the most valuable worms (being annual only) give but one brood or crop a year, and this, happening at the most unsettled and precarious period, is attended with great risk and frequently with serious expenses and casualties. It occurred to me to profit by our long seasons of clear weather, repeatedly to take advantage of our opportunities for providing sustenance during many months continuously for the worms, and by managing to have worms to consume the food at such times as the many different varieties of mulberry are severally in perfection. This is done by employing cold and moisture, as well as warmth, in the preservation and management of the graine, and also by having many varieties of mulberry silkworms adapted by their nature to thrive on the different varieties of food plant. To thoroughly carry out my plan, I imported at great expense mulberry plants of every country, the quality of which at all (*sic*) gave hopes of obtaining useful sorts; and I also, at even much greater cost and after many and repeated failures, succeeded in introducing and rearing in this colony and in Queensland all the most celebrated and choicest breeds of silkworms from every silk-growing country. A large number of these have, after years of severe labor and close attention, become acclimatized; and many important races, under the influence of careful, as well as special, treatment, prolonged through several generations, have become freed from the taint of disease and are now healthy. To arrange this system of "daily succession" one whole year of preparation is required.

Another important system has been perfected by Mr. Brady. During the period of "graining," as it is termed, that is, when the silkworm moths emerge from their cocoons, extraordinary care and attention are necessary with regard to the coupling of moths, etc., and the work is most severe on the attendants. By Mr. Brady's system all this severe work can be avoided.

In the United States for the past twenty years efforts have been made by many of the State governments to grow mulberry trees and encourage the production of cocoons. These efforts, I am informed, have not been in the main successful, owing principally to the fact that the work of silk-production was undertaken in an amateurish way and without that knowledge and experience which are so essential to success. The climatic conditions so favorable to the growth of the mulberry and the production of cocoon that prevail in New South Wales exist to quite as great an extent in our Southern States, south of latitude 35°. Indeed, the cheap labor of our Southern States, as compared with that of Australia, should enable production to be very much cheaper there. The State of Kansas, I hear, spent $20,000 in experimenting with silk culture, but how successful the experiments have been I am not informed. I am led to believe, however, that the same amount of money expended by the Government or by any separate State would be ample to pay the expenses of Mr. Brady for one year at least, and to enable him to demonstrate at one or more points in our country the feasibility and importance of his discovery. If he is not a most mistaken man, his method will result in a revolution of the present methods of silk culture and will open up avenues of profitable employment to tens of thousands of people in those sections of our country where mulberry trees can be grown at a profit.

It will be seen that Mr. Brady's discovery of the methods to bring about the results claimed are not of recent date. I make report of them at this time because Mr. Brady, having failed to interest the governments of, or private parties in, these colonies, is about to apply for letters patent in the United States with the view of introducing this mode of treatment of the silkworms in some of our Southern States where the climatic conditions are similar to those of New South Wales. This is, I think, a matter of great importance to the United States, and it is my sincere hope that the hints here given may be acted upon. The failure of the New South Wales government to sustain Mr. Brady in his efforts may be turned to the advantage of the United States.

I inclose herewith the report of Mr. Brady's exhibit at the Colonial and Indian Exhibition at London in 1886.

WILLIAM KAPUS,
Consul.

UNITED STATES CONSULATE,
Sydney, October 29, 1892.

SILK CULTURE ON THE TWEED RIVER, NEW SOUTH WALES.

[Inclosure in Consul Kapus's report.]

The great inducement to enterprise the culture of silkworms in New South Wales is the well-proved power of the climate and country, as exemplified by the practice of the exhibitor for many consecutive years to hatch out day by day or week by week, or at any (predetermined) intervals, as desiderated, continuous successions of strictly annual mulberry worms, of any approved breeds, for about two hundred days in each year—thus, in fact, creating a factory system of production. A number of rearings can be arranged beforehand, according to the strength of working staff and supply of food mulberry leaf. Corresponding with this arrangement (and assuming that the management of the graine has been duly attended to at the proper time) it necessarily follows after a certain number of days from commencement, and at prescribed intervals (be the intervals days or weeks), the continuous hatchings will present the strange phenomenon peculiar to New South Wales of living silkworms in every daily or periodical stage of progression up to cocooning (every day's lot must be kept severely separate), that is, worms of every stage and daily growth, and through every molt and change of forms (metamorphosis) contemporaneously, and at the same time the emerging and coupling of the moths and deposit of the eggs (the graine again). This continues till operations for the season are finally closed, when the staff employed can respite for a winter, during which refit and preparations are made for the following season.

The whole of the natural history of the mulberry silkworm, absolutely unchanged in its annual habit, is in view at one and the same moment—worms hatched on the day itself, and of every other day, from one day old to full-grown ones actually making their cocoons; the moths emerging, and new eggs being produced, which are a generation to proceed with on a subsequent season. Arranged beforehand, and in the hands of a skilled person, the process is as much under control as machinery in a factory. It is animated, self-reproducing machinery, maintained by supplies of the silkworm's only natural food—the mulberry leaf.

This food (mulberry of many varieties) is produced in this climate in great abundance, and, with judicious management, is made to furnish daily from end of July till April food leaf appropriate in qualities for silkworms in all stages of their growth. A very fertile soil, a temperature of mild frosts in our short winter, and summer heats from about 75° to 95° F. and upwards in shade, together with a rainfall not very unevenly (though there is generally a sort of monsoon or wet season from January to April and a dry winter after) distributed throughout the year, averaging from about 1¼ to 1½ inches weekly; a bright elastic atmosphere at almost all times, especially at night, the summer heats ever tempered by cool breezes—hot winds and cold blasts unknown—these, together with the prevailing abundance of the *Eucalyptus*, constitute the principal elements for the health and comfort of the inhabitants of the Tweed district.

MEXICAN INSURANCE LAWS.

REPORT BY MINISTER RYAN.

I have the honor to transmit herewith a copy of an act of the Mexican Congress, approved the 16th of the present month, for the regulation of all insurance associations doing business in the Republic.

As regards foreign insurance associations doing business in Mexico, this act differs from previous laws chiefly as follows: It requires a deposit to secure policy holders, of $20,000 for the first two millions insurance in force, and $10,000 for each additional million.

It provides for registration of all insurance associations, and charges therefor 10 cents for each $100 of assets when they do not exceed $1,000,000; when the assets exceed $1,000,000 and do not exceed $20,000,000, the charges are 10 cents on each hundred of the first million, and 1 cent per hundred on the remainder. When the assets exceed $20,000,000, the charges are the same on that sum, and for all over $20,000,000 the rate is fixed at one-half of 1 cent per every hundred.

It also imposes taxes as follows: Stamps equal to one fourth of 1 per cent of the face value of policies issued, to be affixed thereto; a stamp tax of 2¼ per cent on all collections of premiums relating to business in force prior to the act; and 3 per cent on all receipts from business issued thereafter. With the single exception that the old law imposed a tax of 2 per cent on all collections, all the foregoing provisions are new and additional to previous legal requirements.

THOMAS RYAN,
Minister.

UNITED STATES LEGATION,
Mexico, December 30, 1892.

NEW INSURANCE LAW.

[Inclosure 1 in Minister Ryan's report.—Translation.]

ARTICLE 1. The insurance companies, native or foreign, already established, or which may hereafter be established, shall be subject to the provisions of this law and other stipulations relative thereto now in force.

ART. 2. The insurance companies of all classes established in the Republic can begin their operations as soon as they have proved up before the treasury department that they have met and filled the requisites required under the code of commerce, as well as those contained in the provisions of this law.

ART. 3. In order to substantiate their legal liability, as referred to in the foregoing article, he insurance companies shall remit to the treasury department—

(1) Duly certified copies of the statutes of the organization and the statutes approved at a general meeting.

(2) A statement of the names and description, etc., of the director or manager of the company, and of the members of the board of directors or administrative board.

(3) A certificate from the register of trade of compliance, by such company, with the law in all that relates to registry and inspection.

(4) A certificate of compliance with the stipulations of article 7 of this law.

ART. 4. The insurance companies of whatever class, incorporated abroad, and which may wish to engage in operation within the Republic, in addition to compliance with the provisions of the first three paragraphs of the preceding article, are obliged to establish before the treasury department the following, to wit:

(1) The deposit of the guaranty required under article 8 of this law.

(2) The establishment of an agent, domiciled in the capital of the Republic, or in any other place in the Republic, if authorized thereto by the treasury department, the said agent to be vested with faculties sufficient to represent the company, legally or otherwise, in its business concerns throughout the Republic, and to treat with the authorities competent under the laws in all matters.

ART. 5. The insurance companies, native or foreign, established and in operation upon the promulgation of this law shall, within the period of the four months immediately subsequent to such promulgation, establish their legal status or liability, furnishing to the treasury department the proof designated under articles 3 and 4.

ART. 6. The native insurance companies established, or which may be established, within the Republic shall guaranty compliance with their obligations toward the public and toward the Government by the acquirement of real property within the Republic or making a deposit in the general treasury of the nation or in the National Bank of Mexico, either in cash or in bonds of the public debt carrying at least 5 per cent.

ART. 7. The amount of such deposit or the value of the real estate shall be $10,000 for all classes of companies prior to commencement of their operations; however, after the first year and in successive years the guaranty is to be proportional to the insurance in force, in accordance with the following propositions, to wit:

(*a*) Up to $2,000,000 in outstanding insurance, $10,000.

(*b*) For each additional $1,000,000 or fraction, $5,000.

ART. 8. Foreign insurance companies operating, or which may hereafter operate, within the Republic shall make a guaranty deposit similar to that specified in the foregoing article; however, in double the amount required of native companies; such deposit to be based upon the amount of the insurance by them carried in the Republic. Should any company prefer to deposit a fixed amount, it may so do in a sum to be defined by the secretary of the treasury, which, however, shall under no circumstances in each given case fall below $50,000.

ART. 9. To fix the value of the real property (estimated) to be acquired by the insurance companies, as well as the terms or conditions under which such guaranty hereinbefore described may be furnished, observance shall be had of the regulation to be issued by the Executive.

ART. 10. The treasury department shall appoint a corps of inspectors, with sufficient personnel, charged with the duty of watching that the insurance companies comply strictly with the provisions of the laws and regulations pertinent thereto.

ART. 11. All insurance companies are obliged—

(1) To communicate to the treasury department each six months a report on policies issued, policies lapsed, policies matured and paid up, and premiums realized and those paid up.

(2) To publish annually a duly authenticated report on the status of the company's business, embracing the several points outlined in the regulations and specifying the amount of the reserve applicable to Mexican policies.

(3) To place at the disposal of the inspectors the documents and the entries in the books, showing the operations of the company as relating to reports furnished to the treasury department.

ART. 12. For the notarial protocolization of documents, to which the insurance companies are pledged, the same shall pay the stamp impost on documents and books, in the following proportion, to wit:

(1) At rate of 10 cents on each $100 when the company's capital or assets do not exceed $1,000,000.

(2) When they exceed $1,000,000, but do not exceed $20,000,000, at rate of 10 cents on each $100 for the first million, and for subsequent millions at rate of 1 cent on each $100.

(3) When such capital or assets exceed $20,000,000, for the first $20,000,000 as indicated in the foregoing provisions; and at the rate of half a cent per $100 on additional millions.

ART. 13. Policies issued by insurance companies on life, be such companies native or foreign, to parties at time of issue of policy resident in the Republic are subject to a tax of one-fourth of 1 per cent, payable in internal-revenue stamps, on total amount of insurance represented by the policy. The quota of internal-revenue tax shall, in the event of insurance against fire, accident, or other risks, be reduced to 2 cents on each $100 upon the amount of insurance, provided the duration of such insurance does not exceed the period of one year; while, in case such period is prolonged, the quota shall be multipliable according to the number of years, which can not be multiplied beyond ten. Policies need not carry the document and book stamps.

ART. 14. In place of the impost established under paragraph 73 of the stamp-law tariff, the insurance companies shall pay a tax of 3 per cent upon the amount of annual premiums received in the Republic.

ART. 15. The payment is to be made at the close of each two months, and in accordance with the provisions established under the regulations. In case of foreign companies, the managers or directors of such companies and the agents or representatives thereof shall, within the period of the first ten days of each two months, submit in duplicate a statement setting forth the amounts received on premiums during the previous bimonthly period, which shall serve as a basis for liquidation of the impost. Upon verification of such statement, or the audit thereof in due form, the respective receipt shall be issued.

ART. 16. The failure to submit the said statement, information, books, and documents, as well as the fact of inaccurate entries to the detriment of the public exchequer, shall be punishable by a series of fines ranging from $50 to $500.

ART. 17. The treasury department shall order the suspension of insurance companies under the following circumstances, to wit:

(1) Whenever the companies, without meeting the requisite formalities, commence their operations.

(2) Whenever the companies fail to maintain, in the proportional ratio fixed in articles 7 and 8 of this law, the guaranty deposit required of them on the amount of outstanding insurance if officially notified by the treasury department.

ART. 18. The companies established in the Republic, and which may not have complied with the stipulations of article 265 of the code of commerce, shall have granted them, for compliance therewith, a definite and nonrecurrent period of four months from the publication of this law. If, upon the termination of the four months aforesaid, the notarial protocolization be not made, the companies shall pay double the rate fixed in the respective stamp tax, without detriment to the sanctions provided for under the code of commerce.

ART. 19. The insurance companies are furthermore subject to the payment of the book and document stamp tax and to the fiscal inspection in the form and under the system of penalties assignable under the law in the premises.

ART. 20. In the event of policies issued prior to the promulgation of this law, the insurance companies shall pay only 2¼ per cent on the value of the premiums realized thereunder.

ART. 21. This law shall become operative on the 1st day of January, 1893.

ARTICLES OF THE CODE OF COMMERCE OF 1889 RELATIVE TO INSURANCE.

[Inclosure 2 in Minister Ryan's report.—Translation.]

ARTICLE 15.

Companies legally incorporated abroad which may be established in the Republic or have therein any agency or office can carry on business, being subject to the special provisions of this code in all that relates to the establishment of its business within Mexican territory, its commercial enterprises, and being likewise subject to the jurisdiction of the courts of the country.

In as far as touches their capacity or right to make contract, they shall be subject to the stipulations of the article treating on "foreign companies."

ARTICLE 24.

Foreign companies wishing to establish themselves within the Republic or set up agencies therein shall present and record in the register, in addition to the notarial record of protocolization of their by-laws, contracts and other documents referring to their constitution, the inventory or final balance statement, should they have such, and a certificate as to their incorporation duly authorized in accordance with the laws of the land where such incorporation was effected and certified to by the Mexican minister accredited thereto, or, in default thereof, by the Mexican consul.

ARTICLE 265.

Companies legally incorporated abroad which may be established in the Republic or have therein any agency or office shall, in order to enjoy the rights granted under article 15, be subject to the following stipulations, to wit:

(1) The inscription and registry referred to in article 24.

(2) When organized under shares, they shall publish an annual statement showing most clearly the assets and liabilities of the company, as well as the names of the persons who are charged with the administration and management thereof.

FOREIGN COMMERCE OF FRANCE IN 1891.

REPORT BY CONSUL LOOMIS, OF ST. ETIENNE.

The customs bureau has published this week at Paris the statistics of the foreign trade of France for the year 1891.

The balance of trade was against France. The total value of the imports amounted to 4,768,000,000 francs; the exports were valued at 3,470,000,000 francs, the excess of the imports over the exports being 1,319,000,000 francs.

The following table contains a list of the principal countries which sold more goods to France than they purchased from her:

Countries.	Sold to France.	Bought from France.	Balance against France.
	Francs.	*Francs.*	*Francs.*
British Indies	250,300,000	9,000,000	241,300,000
United States	483,300,000	247,600,000	235,700,000
Spain	411,600,000	181,100,000	230,500,000
Russia	211,900,000	13,600,000	198,300,000
Argentine Republic	198,200,000	52,200,000	146,000,000
Austria	134,100,000	15,600,000	118,500,000
China	103,600,000	2,500,000	101,100,000
Japan	85,100,000	12,400,000	72,700,000
Turkey	125,600,000	53,300,000	72,300,000
Australia	66,700,000	3,500,000	63,200,000
Sweden	72,400,000	11,200,000	61,200,000
Norway	41,000,000	9,200,000	31,800,000
Chile	52,600,000	16,300,000	36,800,000

It will be seen from the foregoing table that, after the British Indies, the country which holds the largest balance of trade against France is the United States, a trade which has very much increased within the last three years. The country which purchases the largest quantity of French products is Great Britain. Her purchases in 1891 were valued at 1,012,000,000 francs, in return for which France took 588,900,000 francs' worth of goods, leaving a balance in favor of France of 423,800,000 francs. Of course, all the goods shipped from France to England are not consumed there. A large portion of them go to South America, Canada, and other dependencies. After England, France's best customer was Switzerland, which bought to the extent of 234,800,000 francs and sold only 103,400,000 francs of her products to this country, the balance against Switzerland being 131,400,000 francs. Mexico bought 28,000,000 francs' worth of goods in France and sent in exchange only 5,000,000 francs' worth. Brazil took 102,900,000 francs from France in products and sold to her in return 83,800,000 francs. Italy bought 125,500,000 francs from France and sold in return 123,600,000 francs, leaving a balance of 1,900,000 francs in favor of the former. Germany, on the other hand, sold France 366,600,000 francs and bought from her only 364,100,000 francs, making a balance against France of 2,500,000 francs. Indeed, the only country of the triple alliance which bought more than it sold to France was Italy.

While there is an apparent balance of trade in our favor with France, it is more than likely, if the aggregate sum spent by Americans in Paris, Aix, and Nice each year could be accurately or even approximately determined, the balance would be against the United States.

FRANCIS B. LOOMIS,
Consul.

UNITED STATES CONSULATE,
St. Etienne, November 14, 1892.

TRADE CONCESSIONS IN MOROCCO.

REPORT BY CONSUL-GENERAL MATHEWS, OF TANGIER.

I have the honor to transmit herewith a translation of the note which Count d'Aubigny, French ambassador at the Moorish Court, has forwarded to me, enumerating the various concessions in commercial matters which the Emperor of Morocco has accorded to the French Government, and which apply as well to the United States, as one of the most-favored nations.

F. A. MATHEWS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Tangier, November 30, 1892.

THE CONCESSIONS.

[Inclosure in Consul-General Mathews's report.—Translation.]

By a letter dated the 23d of October ultimo (1 Rebi II, 1310), the minister of foreign affairs of the Sultan informed the Count d'Aubigny that the following modifications were made to the Franco-Morocco commercial regimen.

IMPORTATION.

The tissues of silk (pure or mixed), jewelry of gold and silver, precious or falsified stones, rubies, the lace galloons of gold, all sorts of wines or of distilled liquids, and alimentary pastes will hereafter pay not more than 5 per cent ad valorem, this merchandise being estimated at the rate of its mercantile value in ready cash at wholesale in reals vellon at the port of disembarking.

EXPORTATION.

Cumin seed will hereafter pay 6 reals vellon* per cwt.; horns, 8 reals vellon per 1,000; suet, 23 reals vellon per cwt.; caraway seed, 8 reals vellon per cwt.; hemp and linseed, 16 reals vellon per cwt.; wax (white), 60 reals vellon per cwt.

The following products, the exportation of which was prohibited, may hereafter be exported from Morocco, paying the duties indicated: Barks (trees), 6 reals vellon per cwt.; cork, 6 reals vellon per cwt.; copper (mineral), 5 reals vellon per cwt.; iron (mineral), 2 reals vellon per cwt.; other minerals (excepting lead), 5 reals vellon per cwt.; wickerwork of osier, 2 reals vellon per cwt.; arara and cedar wood, 6 reals vellon per half camel load and 5 reals vellon per half mule load.

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*The real vellon is equal to 4 cents of American currency at present rate of exchange.

It nevertheless remains agreed that the barks of trees, the cork, and all the minerals shall not be purchased but from the natives of one of the eight ports open to commerce.

FURTHER CONCESSIONS.

The Moorish Government compromises itself to protect the trade-marks put on French merchandise, so that, should a Moorish merchant counterfeit the said marks or promote their falsification, the merchandise which should be found with these false marks will be confiscated for the benefit of the Government and the author of the falsification severely punished.

By another letter dated the 12th of November, 1892 (21 Rebi II, 1310), the exportation of bones has again been granted in Morocco for the period of one year, under the condition that the sanitary doctor at the port of shipment has ascertained that there are no human bones mixed with them.

All these new disposals enter in vigor on the 21st of December, 1892 (1 Djoumada, 1310).

MAKING SILK FROM WOOD.

REPORT BY CONSUL LOOMIS, OF ST. ETIENNE.

Borrowing the famous sentence of Madame de Sévigné, a writer of renown, in the Petit Journal, of Paris, who has recently visited the factory at Besançon where wood pulp is converted into soft silken thread, says to his readers:

> I am going to tell you about the most astonishing thing, the most surprising, the most marvelous, the most miraculous, the most triumphant, the most astounding, the most extraordinary, the most incredible, the most unexpected, the most prodigious, the most unique, the most brilliant, and the most worthy of imitation and envy of this century—it is the invention of Count de Chardonnet, by means of which wood pulp or cotton is converted into durable, luminous, and elastic silk.

In the volume of CONSULAR REPORTS for June, 1892, I contributed a short account of the Chardonnet process, which has been the means of opening up a good deal of correspondence on the subject, and I am now glad to present some details and additional information.

For a long time after its discovery the process and system of M. de Chardonnet remained concealed in his laboratory. It made its first appearance at the exposition of 1889, where it received the highest award that the jury could give. Connoisseurs, savants, and manufacturers were greatly interested in it, though it had not reached the degree of perfection to which it has been brought to-day.

The great question, that which leads all others, since the new invention tends to produce a revolution in one of the greatest of French industries, is, can this discovery be utilized for the growing needs of the people?

THE PROCESS.

A complete answer in the affirmative has been given to-day by M. de Chardonnet, who has already, by enlisting the sympathies of several business men, built a mill at Besançon, where the "silk" is being manufactured. The raw material is made from wood pulp, such as is used for the fabrication of certain kinds of paper. This pulp is carefully dried in an oven and plunged into a mixture of sulphuric and nitric acids, then washed in several water baths, and dried by alcohol. The product thus prepared is dissolved in ether and pure alcohol, and the result is collodion, similar to that used in photography. This collodion, which is sticky and viscous, is inclosed in a solid receptacle furnished with a filter in the lower end. An air pump sends compressed air into the receptacle, and by its pressure the collodion is passed through the filter, which removes all impurities, and flows into a tube placed horizontally. This tube is armed with three hundred cocks, of which the spouts are made of glass and pierced by a small hole of the diameter of the thread of a cocoon as it is spun by the silkworm. The spinner opens the cock, and the collodion issues in a thread of extreme delicacy (it takes six to make a thread of the necessary consistence for weaving). This thread is not, however, fit to be rolled on the spools by reason of its viscosity and softness; the matter is as yet collodion, and not silk. To produce the necessary hardness, the inventor resorted to a very ingenious but simple method. The little glass tube already mentioned is surrounded by a small reservoir of the same material constantly filled with water; when the thread issues from the aperture in the manner described, it traverses this water, which takes up the ether and alcohol, and then the collodion becomes solidified, that is to say, it is transformed into an elastic thread as resisting and brilliant as ordinary silk.

One more detail. On account of the materials employed in the manufacture of this silk—wood, ether, and alcohol—it might be rightly supposed, as was mentioned in the former report, that the stuff manufactured would be dangerously inflammable. M. de Chardonnet has apparently obviated such a contingency by plunging the spun thread in a solution of ammonia, thus rendering it as slow of combustion as any other material.

THE OUTLOOK.

This discovery seems to have a great future. I have talked with a great many silk merchants, brokers, dyers, and men who manufactured silk goods about the Chardonnet method of producing raw silk from wood, and it is universally admitted that the process will eventually yield large practical and profitable results. A great step has been made towards this end in reducing the inflammability of the Chardonnet silk. Its original combustibility was at the alarming rate of 2 centimeters per second.

Another practical difficulty to be remedied in the invention is the frequent snapping of the slender threads issuing from the cylinder by reason of unequal pressure. This makes it impossible to maintain a standard quality for the output, and consequently there may be produced 5 pounds of excellent silk followed by 5 pounds of a comparatively worthless quality. This difficulty is being overcome, I am told; but, until it is completely removed, men of large means will not invest largely in the stock of the company which has been formed to exploit Count Chardonnet's invention.

Up to the present time none of the rich and important silk men of St. Etienne or Lyons have invested heavily in this enterprise. They all profess to believe in it and declare that in a few years artificial silk produced by this process, when it shall have been somewhat improved in certain details, is destined to figure largely in the commercial world.

The disposition to-day on the part of capitalists here is to await developments. When the process is once perfected and its results are wholly satisfactory, there will be a lively struggle for the control of this valuable invention; and, as I have said, there seems to be no doubt of the ability of the inventor to remove every obstacle which stands in the way of perfect practical success.

FRANCIS B. LOOMIS,
Consul.

UNITED STATES CONSULATE,
St. Etienne, January 10, 1893.

BRITISH SHIPBUILDING IN 1892.

REPORT BY CONSUL BRUCE, OF LEITH.

From an article just published I take pleasure in submitting the following facts relative to the shipbuilding trade in this consular district and in the United Kingdom during this year.

SHIPBUILDING AT LEITH.

The shipbuilding trade at Leith throughout the year could not at any particular time be described as brisk, and within the last three months it has been marked by general depression. With the diminished production at the various yards this year many workmen have been thrown idle, and, as a depression has also characterized shipbuilding at other ports, but comparatively few of the men paid off have succeeded in finding employment; consequently, a pretty large number of workmen are among the unemployed of the town. Orders are scarce, and work in the yards is being regulated by shorter hours. The output this year has been 14 vessels, comprising 6 steamers, 1 sailer, 3 yachts, 3 trawlers, and 1 barge, as compared with 21 vessels, including 5 steamers, 5 sailers, 5 yachts, 3 trawlers, 1 fishing smack, 1 barge, and 1 launch, last year. The aggregate tonnage this year amounts to 10,976 tons, as against 17,532 tons last year, 13,500 tons in 1890, and 18,000 tons in 1889. These figures at once suggest the condition the trade in the construction of new vessels has been in. There was, however, a very great deal of repairing and overhauling of vessels during the year, and, while several of the smaller firms did little or nothing at building, they were kept pretty busy with repairs.

Some inconvenience has been experienced within the last few years owing to the scarcity of dry-dock accommodation. Trade has within recent years developed considerably at the port, so much so that both water and graving dock accommodation has been taxed to its utmost. Vessels have been known to leave Leith to seek dry-dock accommodation elsewhere, so that in those cases repairing work has been lost to the port. This grievance is to be remedied as soon as possible. The dock commission are to construct a new graving dock, it being part of the great scheme of dock extension which is to be proceeded with in the spring of the coming year. The new dry dock will be of such dimensions as will materially relieve the pressure upon the existing docks. The projected dock has given general satisfaction to ship owners and builders.

The following are among the principal vessels launched during the year: *Crown of Austria* (steel four-masted bark), 3,137 tons; *Maha Chakrkri* (twin-screw cruiser yacht), 2,228 tons, 326-horse power; *Valhalla* (steel auxillary steam yacht), 1,401 tons, 145-horse power; *Minorca* (steel steamer), 1,161 tons, 136-horse power; *Norseman* (steel steamer), 1,084 tons, 287-horse power; *Bernicia* (steel steamer), 793 tons, 175-horse power.

The Grangemouth Dockyard Company has had a fairly prosperous year, its output being 15 vessels of 21,704 tons, as compared with 20,360 tons last year. Among the vessels launched by them there were no fewer than 3 barks over 2,700 tons each. Of the total vessels constructed by them 8 were steel barks, 3 steamers, and 4 schooners.

A YEAR'S SHIPBUILDING IN THE UNITED KINGDOM.

An analysis of returns made by the shipbuilding and marine-engineering firms throughout the Kingdom shows that the tonnage launched from the various yards is 200 tons less than in the previous year, 3,000 tons less than in 1890, and 46,000 tons under the aggregate of 1889, when the total reached the highest point. The aggregate measurement of all vessels floated is 1,300,142 tons, and the total power of marine engines constructed 1,003,529 indicated horse power. The latter is 2 per cent less than last year, a greater number of engines for Government vessels constructed being counterbalanced by a lesser number of steamers having been built. The total tonnage given includes 50,450 tons, the displacement of 9 vessels built in the royal dockyards at a cost of £2,920,431, and 90,750 tons, the displacement of 13 British war ships constructed by private firms at an expenditure of over £5,000,000—together 140,200 tons, costing slightly over £8,000,000. This is considerably more than in the previous year.

Excluding seven or eight cruisers and gunboats built for foreign powers, the merchant tonnage floated makes up 1,131,816 tons, considerably less than in 1891. A larger proportion of the total is sailing tonnage—22 per cent, as against 18½ per cent last year; and, assuming that 3 sail tons can only do the work of 1 steam ton, the total, on the basis of steam tonnage, is equal to 948,000 tons, against 1,081,000 tons in 1891.

Ninety-eight out of every 100 tons of shipping built was of steel construction.

A notable feature is that the proportion of the total tonnage built on foreign order has been decreasing for several years and is now 15 per cent, the tonnage having been 188,312 tons, whereas in some recent years it was as high as 23 per cent. This, considering the growth of foreign marines, would seem to partly prove the statement that shipbuilding is being more largely adopted by foreign nations. Norway and Sweden, Germany (principally Hamburg), Russia, and Austria were the principal clients. Of the remaining total, 1,000,000 tons, which were British owned, England takes three-fourths, Scotland 18 per cent, and Ireland 7 per cent. London is the first port this year, with 27.6 per cent of the total; Liverpool, which was first last year, is second, with 25 per cent; and Glasgow third, with 10 per cent. The Clyde owned 14 per cent of the total tonnage, and northeast coast ports 17½ per cent.

Messrs. Harland & Wolff, Belfast, have floated the largest tonnage of any single yard in this or any other year—68,614 tons, the total of 14 vessels; and the greatest engine power was produced by Messrs. Hawthorn, Leslie & Coy, Newcastle—41,350 indicated horse power.

The largest vessel was the new Cunard steamer built by the Fairfield Company; then came two Peninsular and Oriental steamers by Messrs. Laird, of Greenock. Seven sailing ships were over 3,000 tons, and the most noteworthy paddle steamer was the *Glen Sannox*, built for the Clyde by Messrs. Thomson, of Clydebank.

The Tyne and Mersey alone show increases, due to war ships launched; but the ports, as a rule, stand pretty much as they did during the two preceding years. The outlook, however, is far from encouraging.

WALLACE BRUCE,
Consul.

UNITED STATES CONSULATE,
Leith (Edinburgh), December 30, 1892.

OLIVE OIL IN SOUTHERN SICILY.

REPORT BY CONSUL HURST, OF CATANIA.

Olive oil is made in southern Sicily with hand machinery of ancient origin.

The average season for grinding and pressing olives is from the last of September to the last of November, although a large yield prolongs it into January.

The trees grow equally well in the valleys and on the mountain sides; but olives of the lowlands are considered richer, and the oil made from them keeps its excellence for three years, while oil of the drier olives on the heights is not good after two years. But it often happens that on certain tracts especially favored by the sun and soil the fruit is superior, notwithstanding the altitude of its growth.

The olives should be purple and mature, and the quicker the gathering is taken to the mill the clearer will be the oil.

The grinding and pressing are done in one room of a building which, like all the farm buildings, is but one story high, and usually has the earth for a floor. The olives are ground on a circular platform of solid masonry, about 1 meter high and 2 meters broad. The surface inclines toward the center, in which stands a stout, upright piece of wood. Parallel to this and at right angles with the platform is affixed a millstone some 30 centimeters broad and weighing about 800 kilograms. Into this wheel is fastened a heavy pole, to which a donkey or mule is hitched. The stone revolves very slowly, and a man with a shovel turns the pulp constantly. About 100 kilograms are crushed in half an hour, and the mass is then carried to the press in soft rush baskets about 50 centimeters broad. These baskets are flat and have a small opening at the top. About fifteen are filled and piled symmetrically in the press, with the openings of the baskets in each case uppermost. Several pieces of wood are placed on the top of the pile, and a beam, which is held in place by four heavy poles—two at either end—is let down on the whole. A large wooden screw above the middle of the beam is turned by a lever worked by six or eight men. A great pressure is thus brought on the crushed olives. The oil runs freely and passes through a trough into a hogshead underneath. The hogshead is filled four-fifths with water, through which the impurities tend to fall to the bottom. The pulp is left under pressure about five minutes, when a couple of quarts of boiling water thrown on the pile washes the exposed sides of the baskets. The screw is then unturned, and the olives are taken to the mill to be ground a second time for half an hour, while another mass is in the press. This process is gone through three times, when the thrice-ground and thrice-pressed pulp is taken into a dark room, banked up some 40 centimeters high, and left three days, by which time it has attained a high temperature. It is then put in the mill again, and, after being ground, is pressed a fourth and last time. The remaining pulp, which, out of every 100 kilograms averages 70 kilograms, is sold and taken out of Sicily and worked again by stronger machinery. Formerly it was sold to bakers for burning in their ovens, but the bakers buy it now after the fifth pressing.

In the pressing, one-half of the oil is obtained under the first pressure. The remaining quantity is extracted in nearly equal quantities from the other three. The fresh oil is quite green in color, and is taken away as soon as the hogshead becomes filled. After a careful measuring the oil is carried, usually in goatskins turned inside out, to another room, where it is poured into earthen jars holding each some 100 liters. These jars, when new, are red and unglazed both inside and out, and the same kind is made to-day which was used for the oil twenty years ago. The jars usually have a lid which locks. The fresh oil is kept in a jar for eight days, although it clarifies at the end of four.

A warm temperature is best adapted to the clarifying and preservation of the oil, a temperature approximating 70° F., but the changes of day and night do not affect the quality. At the end of eight days the impalpable foreign matter has sifted to the bottom, and the oil is good for the table. It is then carefully poured into another jar, and awaits the pleasure of the manufacturer. After a jar is used it is thoroughly washed with water and vinegar.

A very few steam works of small power have been introduced for crushing the olives, but the great annual production comes chiefly from the many small hand mills scattered through the country, each employing ten or twelve men.

C. BAILEY HURST,
Consul.

UNITED STATES CONSULATE,
Catania, December 5, 1892.

INFANT MORTALITY IN SINGAPORE.

REPORT BY CONSUL WILDMAN.

From month to month, as the health officers' reports have come to my notice, I have been struck with the high rate of mortality among the children. I have compared the death rate here with the rate of such other cities as I had at hand and found in every instance that it was higher. What the real reasons are I do not know, and will only try to explain in a general way. The death rate of adults is low, both among Europeans and Asiatics, and the sanitary arrangements of the city are considered fairly good.

The vital statistics for April show that the births registered during the month come to 221; deaths, 406; excess of deaths over births, 185. The birth rate is equivalent to an annual rate of 16.37 per thousand; the death rate is equivalent to an annual rate of 30 per thousand.

The death rate of children under 1 year of age is equivalent to a death rate of 374 per thousand. This high rate of mortality compares unfavorably with the loss of child life in English or even Indian cities. There the death rate per thousand of children under 1 year of age is: London, 159; Calcutta, 273; Bombay, 264.

In Penang the health officers report an even higher mortality than that of Singapore.

There can be little doubt that this mortality is an indication of unsanitary surroundings detrimental to child life. The present system of registration does not admit of any accurate investigation as to the true causation of death. The deaths of children are invariably returned by the deputy registrars as due to "convulsions," a symptom of many diseases and disorders, a vague term of indefinite meaning, throwing no light on the cause of death. To compare the infant mortality of Singapore with that of English or American towns under better hygienic surroundings would be unfair, but we might expect that child life would not be less secure from disease and death in Singapore than in Bombay and Calcutta. At Singapore a singular feature in the vital statistics is the complete absence of any natural increase of population; month by month the deaths far exceed the births, and the population is kept up by fresh immigration.

ROUNSEVELLE WILDMAN,
Consul.

UNITED STATES CONSULATE,
Singapore, July 11, 1892.

GLOVE AND GLOVE-LEATHER MANUFACTURE.

The reports herewith are in reply to a circular of the Department dated June 25, 1892, submitting the following interrogatories:

(1) Sources from whence the supplies of skins are drawn; also, the classes of skins used, viz, sheep, goat, kid, or crossbred. How bought, viz, in dry or salted state?

(2) What preparatory process are the skins subjected to before being depilated, viz, what softening materials are used in depilating the hair; the time allowed for the different processes?

(3) After depilation, what method of treatment is adapted to cleanse the skin from chemicals used in depilation, and what process ensues up to tanning or tawing the skins?

(4) How and with what are the skins dressed or tanned preparatory to coloring for gloves?

(5) Are anilines or dyewoods used to produce the colors, and is the brilliancy due to any particular process, or has the water used in dressing any virtue in producing this brilliancy?

(6) How are the skins softened and finished for gloves after the drying process?

(7) Are the gloves cut out by hand or with dies; also, what kind of machines are used to sew and silk the gloves?

(8) Any statistics as to prices of materials used in tanning and glove-making, such as skins, tanning materials, silk or linen thread used in the gloves, buttons, etc., cost of labor in tanning and glove-making.

(9) Any reasons why the manufacture of fine colored kid leather and gloves could not be brought to same perfection here as abroad, and if there be any, what are they?

(10) Any special virtue of climate, water, or surrounding; also, length of each process in tanning and length of time taken in making and finishing the gloves, and any other information attainable.

AUSTRIA.

REPORT BY CONSUL RUBLEE, OF PRAGUE.

Just as Grenoble is the central point for kid gloves, Lyons for silk gloves, and Chemnitz for cloth gloves, so is Prague the center of the lambskin glove manufacture. The extent of the glove industry in Prague is perhaps best indicated by the number of manufacturers, of whom there are 120, employing 1,000 workmen and 500 apprentices, and turning out annually about 700,000 dozen pairs of gloves, valued at 8,000,000 florins ($3,200,000). Cheapness of labor has contributed principally to the development of the industry, wages ranging from about 2 and 3 to 12 florins per week (between $1 and $5). Glove-makers nowhere else work for such small wages.

GLOVE LEATHER.

The material used in the manufacture of gloves is almost exclusively lambskin, the skins coming in three different sizes only—first, second, and third grades. The skin of the young lamb slaughtered when but a few months old is called first grade; the skin of the more mature lamb, which, however, is not full grown, is called second grade; and the skin of the full-grown lamb is called third grade. The second-grade skin is best adapted to the manufacture of gloves, and is mostly used. The supply of skins comes from the Orient and the Danube provinces; Bulgaria, Servia, Albania, Greece, Turkey, and Russia sending large quantities of skins. Vienna is the market for the skins, and Oriental capitalists control the import principally. The skins are brought into the market mostly in a dry state, but a small proportion come in a salted condition. The dry or salted skin is treated in the following manner, in order to prepare it for use as glove leather:

The skins are placed in a cemented pit, soft river water being poured upon them, and they are allowed to stand from twelve to eighteen hours. At the end of this period they are taken out and then once more placed in the pit and subjected to this same softening process for a similar length of time. This softening process sometimes is of longer duration, as in the winter time or when the skin is not in a normally dry condition. After the skin is sufficiently softened, the fleshy side is smeared with white lime, and it is placed in the pit and covered with water, being ready for depilation after ten to fourteen days. A mixture of sulphide of sodium with the white lime shortens this time and tends to improve the quality of the leather. As soon as the skins are ready for the process of depilation, they are washed in running water to remove the lime and then placed upon a stand and depilated with a dull instrument. The hard portions are cut off with a sharp knife, and the fleshy side of the skin is loosened. After this is done, the skins are placed in a solution of animal excrement, or, according to the old method, in a bran-dye bath. This process has a decomposing effect upon the impurities contained in the pores and fibers of the skin. After the skins have remained in this ooze from two to twelve hours they are taken out and both sides are carefully gone over to open the pores and to remove the dirt. Thereupon the skins are again allowed to stand from two to twelve hours in a bran-dye bath, when they are ready for treatment with tannin. The tannin used is a mixture made of the following substances: Alum, 60 parts; salt, 20 parts; egg yolk, 50 parts; flour, 100 parts. The skins are fulled for two hours in this mixture and then taken out and dried. After drying, they are again moistened and dressed, the whole process of tanning taking about three weeks' time. Before dyeing, the superfluous tannin is removed by fulling the skins in soft water, and they are also fulled again with egg yolk. The skins are dyed with a decoction made from dyewoods, such as fustet, Cuba yellowwood, redwood, and logwood. After being dyed, the skins are again dressed. The brilliancy of the colors depends principally on the thoroughness of the tanning, but is also increased by a skillful mixture of the dyes.

The prices of the skins vary, according to size and quality, from 90 to 160 florins ($36 to $64) per 100 skins, and the cost of tanning adds from 14 to 20 florins ($5.60 to $8) to this amount.

The hours of labor in tanneries are ten hours per day, and the wages range from 9 to 12 florins per week ($3.60 to $4.80) for workmen, 20 kreutzers (8 cents) an hour being paid for overtime. Apprentices are paid 5 florins ($2) per week. The wages for dyers are about the same.

GLOVE MANUFACTURE.

The method of manufacturing gloves in Prague is the French method prevalent in all glove-making countries. The cutting of the gloves is done by means of metal dies, and the sewing and silking with machines, which are of German and Austrian make.

The cost of the thread varies according to the kind used and the quality. Approximately it may be said that the stronger silk thread for embroidery costs from 50 kreutzers to 1.20 florins (20 to 50 cents) per dozen skeins; the lighter silk thread used, from 30 to 75 kreutzers (12 to 30 cents); and the ordinary thread used for sewing the gloves, from 12 to 15 kreutzers (5 to 6 cents).

There are various kinds of buttons—those of metal, bone, and mother-of-pearl. Metal buttons of Bohemian manufacture are the kind most commonly used, on account of their lesser cost. They cost, according to size and make, from 20 to 50 kreutzers (8 to 20 cents) per gross. English and French buttons are of superior quality and finish and are used when specially ordered, but the prices of such buttons are about 50 per cent higher than those of Bohemian manufacture.

Eleven hours constitute a day's work in the glove factories of Prague, and the wages are partly fixed and partly paid by piecework. The most skillful glove-maker can not make more than 11 or 12 florins ($4.40 to $4.80) per week, and many get less.

The sewing of the gloves is a house industry, and is done mostly by seamstresses in the country. The price for sewing four-button gloves per pair is from 7½ to 8½ kreutzers (about 3 cents), and for two-button gloves 6½ to 7½ kreutzers (a little less than 3 cents). A skillful seamstress can earn weekly wages of 3 or 4 florins ($1.20 to $1.60) at this pay.

The glove manufacturers of Prague concede that gloves made in America are fully equal and even superior to those made by them. They say that there are no reasons why lambskin gloves can not be produced in the United States of as good a quality as those made in Prague. The difference in wages and the closer proximity to the leather market give the Prague manufacturer the advantages of a low cost of production, but the workmanship is no better, if as good, as in the United States.

The United States have never figured as a large buyer in the Prague glove market, and since the McKinley bill took effect the export has fallen off considerably from what it was previous to the passage of the bill. Figures from the declared statement of exports to the United States from this district since 1887 show the following export of gloves: In 1887, $121,660.97; 1888, $206,644.21; 1889, $171,484.36; 1890, $166,299.28; 1891, $98,925.58; 1892, $68,050.78. As much as three-fourths of the gloves made in Prague are destined for the English market, the quantity sent to England annually representing a value of over $2,000,000.

WILLIAM A. RUBLEE,
Consul.

UNITED STATES CONSULATE,
Prague, August 23, 1892.

BELGIUM.

ANTWERP.

REPORT BY CONSUL LINCOLN.

In the consular district of Antwerp there are at present only a few glove-makers of any importance, and their experience in this industry is not sufficiently extended to enable them to give satisfactory material for this report. They guard zealously the secrets of their trade, and are most reticent concerning the cost of labor, materials, etc.

The process of preparing the leather for glove-making is not an industry of this district; hence the inability to obtain any information upon this subject.

Glove skins, or leather, are imported from Germany and France in a dry state. Among the finest skins imported are the French "Peau Nationale." Skins of the first quality are taken from the kid, while those of the second quality are taken from the lamb. No crossbred skins whatever are used here.

Questions 2, 3, 4, 5, and 6 refer to a separate trade, concerning which the glove-makers of this district are quite ignorant.

The gloves are stamped out by heavy stamping machines worked by hand. Various types of machines are used for sewing the gloves, and there are many diffierent systems for silking and for embroidering the backs. One of the best improvements for sewing the gloves is a machine invented by a Frenchman named Brossère. Good machines for both purposes are also manufactured in this country.

The workmen who stretch the skins, stamp, cut, and stitch the gloves are paid at the rate of 14 cents per hour.

When the skins are ready for the glove-maker, they are split, scraped, and moistened by rolling in a damp cloth, in order to render them supple and elastic. They are then ready for stretching and cutting. A piece of skin is cut to the width and length necessary for the required size of glove and is then stretched over a flat cardboard model cut to the shape of an unstitched glove, *i. e.*, a glove laid open back and front. As soon as it is sufficiently stretched so as to take the outline of this model it is placed under a heavy die and stamped out, the buttonholes and opening at the wrist being cut out by hand. The thumbs are treated in the same manner, though separately. The glove is then ready for stitching and finishing.

One hour and a half is the time estimated in which a good workman can complete a pair of gloves.

GEO. F. LINCOLN,
Consul.

UNITED STATES CONSULATE,
Antwerp, July 20, 1892.

BRUSSELS.

REPORT BY CONSUL ROOSEVELT.

I have met with almost insurmoutable difficulties in obtaining the most meager information in response to inquiries relative to the manufacture of fine kid gloves in this consular district. The majority of the glove manufacturers refused to communicate any information to me, declaring that by disclosing the methods employed by them in the manufacture of gloves they would seriously jeopardize their industry and future prospects. One of the most important firms replied by letter, expressing a willingness to sell the information requested for $50,000. In view of the above, I beg to transmit herewith such information as I have been enabled to secure.

SKINS.

Germany, France, Switzerland, Austria, Ireland, Holland, and Belgium supply the skins employed in the manufacture of gloves in this consular district. The skins are generally purchased in the hair in a dry state, excepting when bought in remote districts, when they are transported salted. Sheep, lamb, kid, goat, and occasionally crossbred skins are employed.

DEPILATION.

The skins are first submitted for two days to a fresh-water bath, for the purpose of rendering them pliable. They are then removed to lime pits to loosen the hair, where they remain from twenty to thirty days, according to the quality of the skin. The hair is removed by hand, and all particles of adhering flesh are carefully pared away; and, finally, a knife is passed over the skin to give it brilliancy. The skins are then returned to a bath composed of flour, eggs, alum, salt, and warm water, from which they are removed to a drying room. When thoroughly dry, they are put into a large box and subjected to a steady beating by machinery until softened, after which they are pulled by hand over large knives until supple, when they are then ready to be dyed. No chemicals are used in depilation.

PROCESS OF DYEING.

The skins, if fresh, are first put into cold water, and, if old, into warm water. Men then tread them with bare feet for two or three hours, after which they are returned to a bath composed of the yolks of eggs and warm water, where they are kept about twenty-four hours, or until they are well nourished and ready for the dyer. Both aniline and vegetable dyes are used. Alum and sumac are used to dress the skins preparatory to coloring. The water, being ferruginous, undoubtedly plays an important part in contributing brilliancy to the skins. After dyeing, the skins are put into a bin containing moist poplar sawdust, and men with bare feet again tread them. They are then taken from the bin, opened, and carefully pulled over blunt knives until perfectly supple.

CUTTING.

Gloves are now generally cut by machine and shaped by knives under a press and sewed and silked by "Brossère" machines.

PRICES OF MATERIALS.

Skins vary in price from 9 to 36 francs per dozen. The cost of tanning is from 2 to 6 francs per dozen. The total cost per dozen pairs of gloves is from 10 to 12 francs. It is impossible to obtain correct statistics as to prices of materials, such as tanning materials, linen and silk thread, and buttons employed in glove-making here.

A prominent glove manufacturer here states that he knows of no reason why the manufacture of fine colored kid and leather gloves could not be brought to the same perfection in the United States as in Belgium and France. He is, however, of the opinion that the industry in the United States would not return as satisfactory results as here, on account of the great difference existing in wages in the two countries.

There is no special virtue in climate, but it is of greatest importance that the water should be pure, as it has great influence in successful tanning and dyeing results. It requires from six to eight weeks to tan the skins.

WAGES.

There is no fixed daily wage for men, and, I may also say, no fixed time. They work from ten to twelve hours per day and are invariably paid by the piece, as follows per dozen pairs: Three-button, 3.40 francs; four-button, 4 francs; eight-button, 6.40 francs.

Many women also work by the piece; but the majority work by the week, receiving from 2.50 to 3 francs per day.

COST OF MAKING.

Table showing the cost per dozen of making kid gloves at Brussels.

Description.	Five hooks.	Seven hooks.	Three buttons.	Four buttons.
Leather:	*Francs.*	*Francs.*	*Francs.*	*Francs.*
Skins in hair	9.00	10.00	9.00	10.00
Tanned	12.00	14.00	12.00	14.00
Dressing	1.50	1.70 to 3.00	1.50	1.70 to 3.00
Dyeing	1.50	1.75	1.50	1.75 to 2.00
Cutting	3.40	4.00	3.40	4.00
Finishing	0.30 to .50	.30 to .50	0.30 to .50	.30 to .50
Buttons	....	....	.30 to 1.50	.40 to 1.50
Sewing	1.75	1.75	2.00	2.00 to 2.25
Cording	.25	.25	.25	.25
Packing	.15	.15	.15	.15
Boxes and bands	.15	.15	.15	.15
Cases, shipping, etc	.25	.25	.25	.25
General expenses	1.00	1.00	1.00	1.00

Table showing the cost per dozen of making kid gloves at Brussels—Continued.

Description.	Six buttons.	Eight-button mousquetaire.	Ladies' four-button piqués, sewed.	Men's two-button piqués, sewed.
	Francs.	*Francs.*	*Francs.*	*Francs.*
Leather:				
Skins in hair	12.00	14.00	13.00	12.00
Tanned	16.00	20.00	17.00	16.00
Dressing	2.00 to 3.50	2.50 to 3.70	2.50	2.00
Dyeing	2.00	2.50 to 3.00	2.00	1.75
Cutting	5.00	5.00 to 5.20	4.00	3.75
Finishing	.75	.75	.75	.75
Buttons	.60 to .65	.30 to .65	0.40 to 1.50	0.20 to .60
Sewing	2.25 to 2.50	2.00 to 2.70	4.00	4.00
Cording	.25	.25	.25	.25
Packing	.15	.15	.50	.50
Boxes and bands	.20	.20	.50	.50
Cases, shipping, etc	.25	.25	.25	.25
General expenses	1.00	1.00	1.00	1.00

GEO. W. ROOSEVELT,
Consul.

UNITED STATES CONSULATE,
Brussels, July 29, 1892.

FRANCE.

REPORT BY CONSUL WILLIAMS, OF ROUEN.

The glove industry is of no importance whatever in this consular district. The preparation of skins of all kinds for fine gloves takes place chiefly at Paris, Annonay, Auxonne, Bordeaux, Grenelle, Lagny, Lyons, Le Vigan, Vernay, and St. Junien—all places beyond my reach. Kid gloves of choice character are manufactured at Paris, Brest, Chartres, Channon, Clermont-Ferrand, Dijon, Grenoble, Lyons, Millau, Nancy, Nîmes, Niort, Portieux, St. Junien, Toulouse, Troyes, and Le Vigan.

The materials employed in France are chiefly sheep, goat, and kid skins. Cat and rabbit skins admirably colored are made to imitate all kinds of furs. Rat skins are used chiefly for making the thumbs of ordinary sorts. Dog-skins are more of an English specialty.

Paris and Grenelle, although held in high repute for the character of their manufacture of fine gloves, dispute the market with Belgium, Italy, and Germany for the coarser qualities.

Regarding the preparation of skins, I know that they employ large quantities of eggs (the yolk). Grenelle manufacturers have special agents to buy yolks in large cities. This explains why omelets generally look pale at restaurants and hotels; they are made of two whites and one yolk, and paid for as if made with two complete eggs.

CHAS. P. WILLIAMS,
Consul.

UNITED STATES CONSULATE,
Rouen, July 28, 1892.

ST. ETIENNE.

REPORT BY VICE-CONSUL BURROUGHS.

The skins employed in the glove trade are derived from kids of from three weeks to two months old, roebucks of from four to eight months, and lambs of from one to four months. Every country in the world furnishes the skins for this industry, of which the principal are: In Europe—France, Switzerland, Belgium, Germany, Austria-Hungary, Turkey, Greece, Italy, Spain, and Portugal; in America—Chile, the Argentine Republic, and Mexico (the United States furnish very few, and the quality is not good); in Asia—Turkey and India; in Africa—Algiers and Morocco. The skins are bought in the dry state in proportion of 95 per cent, and great care must be taken to insure their proper preservation; they must be shaken frequently, in order to prevent fermentation and to destroy the insects which attack them. Sometimes, in order to avoid these troublesome manipulations, insecticide powders are used containing a large amount of naphthalin. Some important manufacturers of gloves buy the raw skins in the countries above mentioned, and in that case treat directly with the butchers in lots varying from 10 to 500 dozens, according to their needs, the qualities of the skins, and the price asked. These purchases are generally made by a special agent of the manufacturer, if not by the head of the firm himself. The skins are then put into the hands of the tanner, and, passing through those of the dyer, they are ready to be cut into gloves. In a large number of cases the skins are bought by special dealers, who sell them, with as much profit as possible (naturally), either in the raw state or already tanned, to the glove manufacturers.

The principal agent employed in depilating is lime, in the proportion of from 2 to 6 pounds for a dozen skins. With this a small quantity of special agents, such as sulphide of arsenic and sulphide of sodium, is often employed to hasten the process. There exist certain patented compositions of more or less value, but they are not much used. The skins remain in the lime from ten to forty days, according to their place of origin and their quality.

After depilation the skins are cleaned by large washings in clear water (as little calcareous as possible); but, as these simple washings are in general insufficient to remove all the lime, recourse is had to milling or fulling, done with knives or with special machines. The skins are then put to ferment in water containing bran, where they remain from one to three days; the temperature of the water is maintained at about 100° F., and from 100 to 250 grams of bran are employed for each dozen of skins. The process of fermentation finishes the cleaning and prepares the skins for tanning.

The principal agent employed in tanning is alum, but a little marine salt is added to the solution, which is then mixed with the yolk of eggs; the whole is rubbed up with wheaten flour. The skins are well worked in this mixture, either with the feet or with an apparatus called a turbulent. Coming out from this operation, the skins are quite white and as soft as a glove.

For dyeing skins destined to the manufacture of gloves the coloring matter derived from dyewoods is almost exclusively employed (95 per cent). The aniline dyes have given bad results up to the present; they do not fix easily on the skin, and the different shades obtained change rapidly in contact with the air. The various kinds of woods used are logwood, Brazil wood, yellowwood, fustet, and quercitron bark. The brilliancy of the gloves is natural, and depends mostly on the quality of the skins, and also on the care taken of their preservation when in the raw state and the manner in which the tanning has been done. The water has no special virtue in the matter, and any artificial brilliancy given to the gloves is insignificant.

After tanning and dyeing the skins are dried. Becoming stiffened like parchment and shortened in this process, they are stretched to their primitive dimensions by means of the softening iron. This operation produces all the softness desired; yet it must not be forgotten that the softness of a skin depends greatly on its quality and the manner in which it has been treated by the tanner and the dyer.

The gloves are cut by hand by a trained cutter. This man studies carefully and measures each skin, so as to get the most out of it that is possible. He then cuts it into as many parts as will make gloves. He then works each piece, stretching it from one side to the other and paring it so as to make it cover exactly the model (in cardboard) representing the form of the glove he is given to make. These pieces, thus arranged, are placed in series of twelve under a die (*emporte-pièce*), which cuts out the form of the fingers and the button slits. For several years the gloves have been rarely sewed by hand. Three kinds of machines are used, styled, respectively, "quilting," "saddler's stitch," and "whipstitch." The machines made by Brossère, at Paris, are the most generally used. Several imitations have been made of them, with more or less success.

The following are the prices of the different materials employed:

Description.	Price.	Description.	Price.
	Francs.		*Francs.*
Skins.......................per dozen...	2.00 to 25.00	Quercitron..................................	(*)
Alum...............per 200 pounds...	16.00 to 25.00	Dyeing....................per dozen...	1.75 to 2.50
Yolks of eggs.......................do......	100.00 to 200.00	Thread...........per dozen reels...	.60 to .95
Flour....................................do......	35.00 to 50.00	Silk.......................per kilogram...	55.00 to 110.00
Lime..	(*)	Buttons.....................per gross...	(*)
Tanning............per dozen skins...	4.00 to 6.00	Cutting..........per dozen gloves...	1.50 to 3.50
Logwood...........per 200 pounds...	20.00 to 30.00	Stitching...............................do......	1.75 to 1.25
Fustet ....do......	12.00 to 16.00	Finishing..............................do......	.75 to 1.25
Yellowwood..................................	(*)	Dressing...............................do......	.20 to .35
Brazil wood.................................	(*)		

* Variable.

The glove industry is very complicated. It embraces three distinct branches—tanning, dyeing, and cutting, the latter being the most important. The mass of the population of Grenoble was born, so to speak, in the glove industry, and for generations, consequently, the labor necessary for the manufacture of gloves is always at hand. Almost every operation in glove-making requires a long and assiduous apprenticeship; a cutter, for instance, will take two years, but not one out of ten even after that period might be considered a good workman. The fingers of a cutter need, like those of a pianist, to acquire that habit and nimbleness that practice alone can bestow. To be a good cutter a long experience is necessary, as two skins are never alike, that is to say, have the same flaws; consequently the workman has to study carefully each piece, in order to get the best profit out of it. The manufacturers choose their workmen in this line from among the most intelligent and the most clever, as the inefficient sometimes cause a loss of one to several francs in a dozen gloves. Middling workmen are only intrusted with inferior qualities; the same holds good in every branch of the industry.

Several persons well known in Grenoble have endeavored to set up a glove manufactory in the United States, commencing on a small scale; but they were obliged to abandon their project at the end of two or three years, alleging that there was no money to be gained by it. The men and women who were brought to America for the purpose, and who have returned, pretend that they could not accustom themselves to the ways and habits of the country, and, even though they earned higher wages than at home, they could barely live. It is believed, however, that with perseverance it would be possible to train Americans to the different processes of the industry; but up to the present no manufacturer has attempted it, fearing the instability of the workmen. He who would risk the enterprise in a small way should be prepared to spend large sums of money for the first three or four years in the training of the men, and, once trained, his employés might forsake him to go to another manufacturer who would give them higher wages, and who would consequently reap all the advantage. Many of the gloves made at Grenoble are far from deserving the name of Grenoble gloves, and there is no reason why a commencement should not be tried on a secondary article, and by perseverance improve the quality.

The climate, water, or surroundings appear to have no special virtue. A pair of gloves can be tanned, dyed, cut, and sent off in twenty hours. Nevertheless, to tan a bundle of skins containing above 500 the tanner will require from sixty to ninety days; the dyer, for the same quantity, will take five to fifteen days; a manufacturer, to cut, finish, and dispatch the gloves made from those skins, requires from sixty to ninety days; total, one hundred and twenty-five to one hundred and ninety-five days.

The tanning and dyeing are done in the manufactory. The gloves are made both at the manufactory and at the homes of the employés. In the latter case work is carried away for several days at a time and returned finished. The hours of work are in general ten. The workmen in the tannery are paid 40 centimes per hour; the dyers are paid from 90 to 110 francs per month; cutters, 120 to 160 francs; women, 50 to 70 francs; and children, 20 to 45 francs.

In conclusion, I may add that Grenoble (population 51,000), which is the chief town of the department of the Isère, is the great center of the glove industry, not only in this consular district, but in the whole of southern France. It has over one hundred manufactories, giving employment to 2,100 workmen and 20,000 stitchers. Besides, there are three tanneries and twenty-five dyeing establishments. A great part of the manufacture is sent to the United States.

At Millau, one of the secondary towns of the department of the Aveyron, some gloves are also manufactured, but tanning occupies a more important position there.

HASTINGS BURROUGHS,
Vice-Consul.

UNITED STATES CONSULATE,
St. Etienne, July 28, 1892.

GERMANY.

BERLIN.

REPORT BY CONSUL-GENERAL EDWARDS.

The supplies of skins used in the Berlin district are drawn from Europe, South America, and Russia. The colt and calf come from Russia. Lamb, kid, colt, and calf are used. The skins are generally bought in the dry state, very few in the salted state.

The skins are first put in vats filled with cold, soft water and left in that condition from one to three weeks, according to the weight and size of the skins. Afterwards they are dipped in lime or arsenic to remove the wool or hair, as the case may be.

After the above process, the skins are cleaned in clear, tepid, soft water once; then twice in cold water; then they are put into a bath of yellow of eggs, flour, salt, and tepid water. During the bath they are worked with machines or with the feet for one, two, or three hours. Afterwards they are hung up in a hot room, called the drying room. They are afterwards laid away for a week, then put into damp sawdust and worked over iron horses or stretchers to make them soft and ready for market.

Before coloring the skins they are again put into tepid water and trodden for two hours; then another egg bath is given, in which the skins are also trodden one hour and then left for twelve hours in this bath; then they are ready for coloring.

Anilines and dyewoods are used for coloring glove leather. Soft water is needed, in order to give the skins a luster.

After the skins are colored and dyed they are again worked over stretchers.

Most all gloves are marked out by hand to correct size and drawn into the proper length and width, then put on dies and pressed out with presses.

Machines used are most all overseam machines, which are made in Germany, France, and Austria. The silk used is ordinary 00 and 000 sewing silk, or, where cotton thread is used, 120 Coats's or Clark's. Ordinary embroidery silk is used for the backs.

There is as much difference in the prices for cutting, sewing, dyeing, etc., of the skins as there is in the weight, quality, etc., of the skins. It is therefore impossible to give definite data upon that subject.

There is no reason why the manufacture of fine-colored kid leather and gloves can not be brought to the same perfection in the United States as abroad. The only obstacle in the way is the cost of labor.

W. H. EDWARDS,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Berlin, June 25, 1892.

BRESLAU.

REPORT BY CONSUL ERDMAN.

The sources from which the skins are supplied are Russia, the Levant, the Orient, Italy, Spain, France, Germany, Africa, Arabia, and South America. The skins used are sheep, lamb, goat, and kid. They are bought in a dry state.

The skins are soaked in water. For depilating arsenic is used. The time varies, according to size of skin, from three days to two weeks.

After depilation the skins are rinsed in water. They are then given an egg bath, bran and flour being used in the bath. After this they are dried, soaked in water to soften, and then stretched.

The egg bath is sized with urine.

The dyes used are, according to shade required, aniline or dyewoods. Hard water is preferable.

The skins are softened and finished for gloves by dampening and stretching.

The gloves are cut out by hand and with dies. French, Danish, Austrian, and German machines are used.

Prices vary and range according to material used and size of skins. The cost of labor varies according to the quality of the skins.

There is no reason whatever why the American market should not be able to produce leather and gloves to the same perfection as abroad.

A temperate climate and hard water are necessary. The time necessary to make a glove from the raw skin is about four months.

C. W. ERDMAN,
Consul.

UNITED STATES CONSULATE,
Breslau, July 23, 1892.

KEHL.

REPORT BY DEPUTY CONSUL HANSMANN.

There are no manufacturers of fine glacé or suède leather in this district. There are, however, two manufacturers of medium-grade glove leather in this district, one of whom makes wash leather ("chamois") for army gloves; the other one works up lambskins. Upon my written request for information each of these two manufacturers gave me a summary exposition of the nature of his business. The following are their remarks:

MANUFACTURE OF WASH LEATHER.

The skins employed are principally doeskins, sometimes, also, buckskins. They are of local origin, and are bought in dry state at an average price of 2 marks (48 cents) per doeskin.

The skins are first soaked in pure water and are then put in a solution of lime, until the hair becomes loose. This usually takes two weeks. The hair is then scraped off and the skins put in limewater for a further period of three to four weeks. The cuticle is next scraped off, and the skins put into the "sweller" for a few days. The "sweller" contains a solution of lime, and here the skins expand, the pores becoming filled up. The skins are then suspended in clear running water for a few hours, and are next wrung out with sawdust by a specially constructed machine.

The skins now come into the fulling mill and are fulled (tanned) for six to eight days with whale oil. They are then cleansed of the surplus grease, washed, dried, stretched, and drawn over a crescent-shaped iron until quite soft. The leather is sold to the glove manufacturers in this condition undyed.

Climate does not affect the manufacture of wash leather. Clear, running water is, however, an essential condition.

MANUFACTURE OF LAMBSKIN GLOVE LEATHER.

The lambskins are purchased both dry and salted, and are mostly of European origin.

The skins are soaked in water for a long time, then put into pits containing a solution of lime and arsenic. After three or four weeks the hair is removed. They are again put into pure water, and then in a bran bath for twenty-four hours. The bran is scraped off with an iron, and the skins are tanned. For tanning, a mixture of 85 per cent of wheat flour, 10½ per cent of alum, 2½ per cent of common salt, and 2 per cent of yolk of eggs is dissolved in a sufficient quantity of water—about 75 gallons for 1,000 skins. This paste is heated to about 100° F., and the skins are put in, thoroughly kneaded, and allowed to remain twenty-four hours. The leather is then dried slowly, drawn through pure water, worked with a fulling machine, and drawn over a dull, crescent-shaped knife crosswise and lengthwise until well stretched and soft.

After partially drying again, the leather is trimmed with a sharp, crescent-shaped knife and the thickness made uniform.

The leather is then dyed, the color being applied by beating and spattering with a brush. Dyewoods and anilines are used for dyeing. The brilliancy is due in great part to careful treatment and tanning. When dyed, the leather is again drawn over the crescent iron until very soft, and it is then ready for the glove-maker.

The average wages paid to men in this factory are 3 to 4 marks (72 to 95 cents) per day.

Good, clear, running water is an important factor in tanning lambskins. Most important, however, is a skilled and experienced master tanner, as nearly every good tanner has his own methods, which are often the result of costly experiments.

There is no kid-glove industry in this district to my knowledge.

CARL A. HANSMANN,
Vice and Deputy Consul.

UNITED STATES CONSULATE,
Kehl, July 28, 1892.

MANNHEIM.

REPORT BY CONSUL WINTER.

The supplies of skins are drawn from almost every quarter of the globe. All kinds of sheep, goat, and kid skins are used. Cheap kinds of goat and middle kinds of lamb skins are utilized. They are brought to market partly in dry and partly in salted state.

The softening material used in depilating the hair is a solution of lime. Sometimes arsenic is introduced. The time required depends on the age and strength of the skins and the strength of the solution.

In order to cleanse the skins from chemicals used in depilation, different salts are used. Salts of ammonia are largely used. The composition of this solution is one of the secrets of the trade and inventor, and is not fully described. Dog-dirt solution is also used for cleansing skins from chemicals. After these processes the skins undergo a thorough washing with pure water.

Preparatory to coloring for the manufacture into gloves, the skins are dressed or tanned in an alum solution intermixed with salt and eggs. The strength of the solution of alum depends upon the age and texture of the skins, which can be determined readily by experienced tanners.

Anilines and dyewoods are used to produce the colors. The brilliancy is the result of the anilines and dyes and the thorough tanning or cleansing and dressing processes. The water in no way produces the colors; but care being used in having the water as pure as possible is, of course, an important element.

The skins are softened and finished for gloves after the drying process by rubbing and stretching.

The gloves are cut out by hand and by the use of dies, and sewing machines are used to sew and stitch the gloves.

I am unable to get any statistics from the manufacturers or from the chamber of commerce as to cost of labor and material used in the manufacture of gloves, and, indeed, it was attended with considerable pains and difficulties that the above information was obtained. The manufacturers consider that there could be no special advantage or object in giving information as to their private business, which could in no way aid them in lessening competition or in extending their trade.

Certainly there can be no reason why the manufacture of fine, colored kid leather and fine kid gloves should not be brought to the same perfection in the United States as elsewhere. The climate is as good and the water is as pure in the western continent as in any other part of the world. All that is needed is capital, experience, and skilled workmen, and certainly the United States are not wanting in any of these requisites.

JNO. F. WINTER,
Consul.

UNITED STATES CONSULATE,
Mannheim, October 31, 1892.

ITALY.

REPORT BY CONSUL PEPPER, OF MILAN.

The classes of skins used for gloves are sheep, goat, and kid. Nearly all the demand is supplied from the provinces of Brescia, Lago Maggiore, Parma, Genoa, and Tuscany, and are bought partly in dry and partly in a salted state.

The following are the preparatory processes the skins are subjected to before being depilated, the softening materials used in depilating the hair, and time allowed for the different processes: (1) Put the skins into clean water for three or four hours; (2) put them in a bath of chalk and arsenic for a month; (3) shave them with a knife made especially for the purpose; (4) put the skins in a bath of dog excrement (liquid) with water two days; (5) put the skins into a bath of yolk mixed with flour three days; (6) nail them to boards to dry.

Only dyewoods are used for coloring the skins. The brilliancy depends much upon the water and the air.

The gloves are cut with a machine.

The price for tanning the skins is 3 francs per dozen skins. For cutting the skins the price is 2.50 francs per dozen gloves. For coloring them 2 francs per dozen skins is paid. The cost of thread is 30 centimes per dozen gloves. Embroidering and buttons cost 1.50 francs per dozen gloves.

It has been very difficult to secure this information. Manufacturers of gloves do not wish to furnish every incident in connection with their industry, and it has only been by careful, presistent effort that so much information has been obtained.

GEO. W. PEPPER,
Consul.

UNITED STATES CONSULATE,
Milan, August 10, 1892.

RUSSIA.

REPORT BY CONSUL-GENERAL CRAWFORD, OF ST. PETERSBURG.

Conforming to an order of the Department dated June 25, 1892, I have prepared the following report, based upon authentic data, on Russian leather prepared for and used in the manufacture of gloves.

The bulk of fine gloves made in Russia are made from foal skins. There is very little done in this country in the manufacture of gloves from sheep, goat, or kid skins. In the preparation of foal skins, it should be said that they are of very difficult fabrication and require much hand labor to make them sufficiently soft and delicate. It is claimed that there is an art in the preparation of foal skins for gloves that the Russian workmen have to very great perfection as compared with foreigners. It is doubtful whether foal skins could be prepared sufficiently cheap where hand labor is dear to compete with other skins on the general market. The experiment has been tried in France, Belgium, and Germany, but with very poor results, as the workmen there appear not to possess the perseverance and endurance necessary to this business. Foal skins, when well dressed, are very durable and at the same time delicate and have a great advantage in taking well all sorts of dyes. In the manufacture in Russia of the so-called Swedish gloves, goatskins are generally used. The foal skins, as well as the goatskins, are bought in fresh state.

In order to depilate the skins, they are submerged for five or six weeks in a concoction of water, flour, eggs, alum, and bran. In no instance are there any so-called chemical materials added to the mixture for the purposes of depilation.

For preparing the ordinary colors, the skins are dyed on a table by sweeping them thoroughly with a brush dipped in the appropriate dye; for light-colored gloves, however, the skins are immersed in the liquid, carefully prepared and tested.

Skins are dressed after depilation usually by hand in the old way, by rubbing them over ordinary wooden blocks with a hand pin prepared for that purpose. This is the most difficult part of their preparation, and requires great endurance and patience. There are many kinds of tan barks used for tanning preparatory to the coloring.

Aniline dyes are here very seldom used, and never except for extraordinary colors, as, for example, bright green and violet. Nearly all the other shades can be secured by the use of dyewoods, of which there is a great variety in Russia. The foal skin has in itself very little brilliancy, and therefore, when brilliancy is required, powder of *talc de Venise* is used for that purpose; but its use renders the skin hard and less durable. The quality of the water is believed to have much to do in the proper preparation of the Russian glove leather, and the Moskva River water is considered to be the best for dressing.

For softening the skins, they are spread over a sickle-shaped knife or softening spade.

Gloves are cut out in Russia chiefly by hand. Dies are rarely used, although the die-cut glove is the more regular. Gloves are also generally sewed by hand over a form for that purpose, and are considered better than machine-sewed gloves.

The cost of the skin, properly prepared, is not far from 15 to 17 cents per pair for the ordinary size. Remnants from the cutting shop are sold to the manufacturers of musical instruments, purses, and tobacco pouches. Gloves can be made to order here at the same price as those sold in stock. For the cutting of two and three button gloves workmen are generally paid about 85 cents per dozen; for more than two and three buttons, proportionately dearer. For sewing the two and three button gloves they are paid about 65 cents per dozen, and five and six button gloves 75 cents per dozen, and so forth. Buttons are generally bought in Paris, as well as the finest silk thread, and crochets and hooks in England.

Out of five hundred foal skins from twelve to fifteen hundred gloves of best quality can be made. One workman sews from eight to nine pairs per day if a machine is used and only two or three pairs by hand.

The cost of labor in Russia in general is very little, and this fact seems to me to offer the only reason why skins could not be as advantageously prepared in the United States.

As will be seen from the foregoing, there is very little manufacture of the genuine kid glove in Russia.

J. M. CRAWFORD,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
St. Petersburg, November 30, 1892.

SPAIN.

CADIZ.

REPORT BY CONSUL TURNER.

Hereto annexed is such information as I have been able to secure about glove-making.

There are no tanneries in Cadiz, and for that reason I have gathered what follows by writing to glove-makers and our consular agents and inclosing to them translations of the questions contained in the circular.

I can find no reason why the manufacture of fine kid and sheep gloves should not be carried on in the United States, unless, perhaps, the cheap labor of Europe should prove a preventative.

I can add nothing to the following except that an old glove-maker informs me that the best gloves are made from the skins taken from kids and lambs that have had no other sustenance than their mothers' milk, and that the finest of glove leather is made of kid and lamb skins prematurely born or the skins of those secured by killing the mother animal for the pelt of her unborn young.

The sources from which skins are obtained are Granada and Grazalema; the latter place is in the province of Cadiz. The skins generally used are those of young kids, and are bought already tanned.

They are placed in a limewater bath for four or five days, after which they are taken out and extended upon a bench called "caballete," and with a curved knife that has no cutting edge, known as the "descarnador," are depilated, then turned over and by means of another knife of dull edge are excarnated, or cleared from flesh (see rasping knives).

After this the skins are rasped with another unsharpened knife, then stamped with a rammer and rasped again. They are then put into a bran-water bath, until they float on the surface, when they are taken out and the bran removed by means of a slightly sharpened knife, which is passed over the skin from side to side. When thus cleansed they are placed in a large earthen vessel containing beaten yolks of eggs and wheat flour and agitated for a short time; then melted alum is poured into this bath in the proportion of 3 pounds for every twenty-four skins. In this wash they must be macerated with the feet for two or three hours, after which they are taken out, washed, pressed to remove the water, and placed to dry.

The skins are prepared for coloring by rasping and softening them, placing them upon a lead table and saturating them with urine or potash.

Anilines are employed to produce the colors, and the brilliancy is obtained by means of polishers (see illustrations).

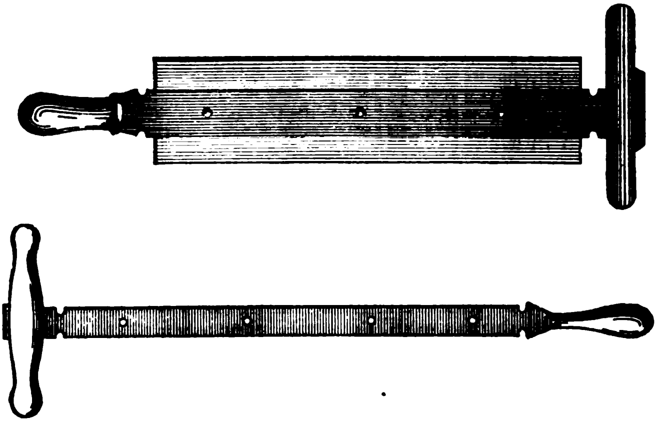
The skins are softened by rubbing and macerating them.

Gloves are modeled by means of dies and sewing machines very similar to those in general use, which are brought from Germany.

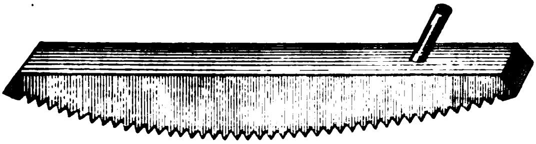
Russia leather is sometimes used for making gloves. Its preparation commences, like that of the common leather, by removing the grease and depilating the skins with lime. Afterwards they are macerated in a bath of fermented rye flour dissolved in water. They are kept in this bath for two days, then cleaned in water and washed in running water. This operation can also be performed with a sour infusion of barley, with sour tannin juice diluted, or with an infusion of dogs' excrement. The tanning is performed by employing the bark of the birch, pine, or willow trees, in which decoction the skins are submerged and agitated twice a day for a fortnight by some and for five or six weeks by others. After this they are rubbed and scraped upon easels, and, once cleaned, extended upon a table and impregnated, on the flesh side, with the empyreumatic alcohol oil obtained by the combination of tar and birch bark, rubbing them strongly until they are completely impregnated, and then stretching immediately in order to give them the necessary flexibility. Once saturated with this oil, the hair side is bathed with a solution of alum, then dried, and a fluted cylinder passed over it. It is now ready for coloring. The red color of Russia leather is obtained by boiling red sandalwood and logwood in limewater containing a small quantity of carbonate of potash and oxide of sodium, which infusion is poured into sacks formed by two skins sewed with the hair side inwards.

INSTRUMENTS USED IN PREPARING GLOVE LEATHER.

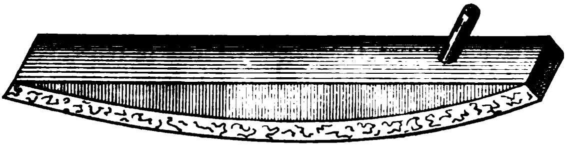
RASPING KNIVES.



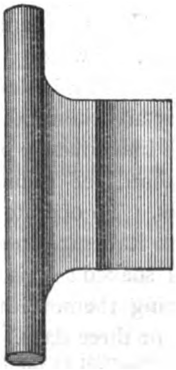
LAMINATORS.



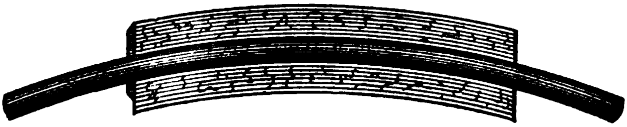
RUBBER TO DESTROY THE GRAIN OF THE SKIN.



CORK POLISHER.



POLISHER.



POLISHER.

The liquid is kept inside until it penetrates the skin. The color can also be applied with a brush, giving the skin continual coats of the infusion named above. When the skins are colored the ordinary methods are proceeded with to soften and polish. To give them the aspect and softness required, they are submitted to a rubbing, with a woolen rag, of fish and birch oil. Several Russia leathers are known, distinguished by the names of "malia," "rasped," "plain," and "werhock" leather. The malia leather is cut in parallelograms. The rasped, better than the first, is also cut into small squares. The plain leather, as its name tells, is devoid of any sort of design on its surface, and, if destined to the manufacture of objects, it is given a higher polish by passing it in a damp state through a laminator. The werhock leather presents a rhomboidal granulation, but is not, I think, used for making gloves.

Knapp leather is prepared by two methods. The first consists in submerging the skin in a bath containing 5 per cent of tanning lime, where it is kept until well impregnated, then taken out and left to drip. Afterwards it is introduced into another bath composed of from 3 to 5 per cent of potash soap, in which it is tanned, and whose immersion lasts, as that in the first bath, for one or two days, at the end of which the skin is washed and dried. The second method, by which better results are obtained, consists in mixing an alum solution with the soap, thus obtaining a compound in which the skin is kneaded. After this it is washed and dried. The Knapp leather obtained by means of the alum soap has a white surface, and is soft and agreeable to the touch.

White leather is prepared from kid, goat, and sheep skins by submitting them to the preparatory operations of tanning, employing lime for cleaning and depilation, and washing them well in order to completely remove the grease, for which purpose and to swell them they are placed, after being cleaned, in a bath of oat water, where they are kept for two or three days. They are then taken out, washed, and wrung out by twisting. They are then immediately put in the tanning bath, which is composed of 750 grams of alum, 300 grams of marine salt, and 22½ liters of water for every ten skins. To operate with it, a hot liter of this mixture is placed in a tub, and when it begins to cool a skin is submerged in it once or twice or until it is well soaked; it is then taken out and the others treated in the same way, placing them, without drying, one over another, and thus leaving them for two or three days. Afterwards they are twisted and hung up to dry on long poles, called "pertigas." During this drying the skins become wrinkled and very rigid. In order to lengthen them and remove the wrinkles, they are rubbed longitudinally against the convex part of a curved bar. To prevent them from becoming creased by the preceding operation, they are dampened before it takes place. They are now ready for market.

The preparation of glove leather requires especial tanning, performing every operation in an exceedingly careful manner, so that the skins may be completely cleaned, greatly softened, and given that elasticity necessary to adapt them to the form of the hand and to always preserve their grain intact. The skins employed for the preparation of this leather are generally from young kid or sheep, the latter being inferior to the first. The preliminary operations of preparing this leather are the same as those indicated for white leather, the tanning being different. When prepared they are introduced and macerated with the feet in a bath composed of wheat flour, eggs' yolk, alum, marine salt, and water in sufficient quantity to form a sort of light paste, which acts in the following way: The flour swells the skin by the combination of its glutinous parts with the alum absorbed by it, the eggs' yolk acts not only by its albumen, but also by the oil which it contains, and gives to the skin the softness and resistance necessary for leather intended for gloves. Once well soaked in this paste the skins are taken out, and, after drying, dampened slightly and stretched as rapidly as possible. Then they are placed by dozens inside a cloth and tramped with the feet to soften them. They are then submitted to the polisher, the same as white leather, where they are stretched and polished, which operation removes the last vestiges of flour which may remain. They are then whipped and beaten to give them softness. When the leather is destined to the manufacture of embroidered gloves, it is polished with a glass polisher on the hair side, or with another machine, or covered with a light bath of albumen, Senegal gum, or soap.

Don Nicolás Prado, foreman of Señor Bocanegra, glove manufacturer, Cadiz, replied to my inquiries as follows:

> Skins used for the manufacture of gloves in Spain are kid for the first quality and lamb for the second quality. These skins are bought already tanned, the sources of supply for this province being Granada and Grazalema.
>
> After the skin is tanned, and before it is dyed, it is washed in clean water for ten or fifteen minutes. After this washing, during which the skin is kept in continual movement to remove all the salt that may have remained after tanning, wring the skin and give it another water, in which has been placed one yolk of egg, well beaten, for each two skins. After this operation, which softens the skin, wring it again, then extend it upon the bench on which it is to be dyed, and give it a bath of urine or alkali volatile, so that the dyes will take effect. For this bath urine is preferable, because it is not so strong and gives greater brilliancy to the skin.
>
> To produce colors, anilines and dyewoods are used. Anilines are preferred to give strong colors, while the dyewoods are in favor for light colors and shades and for black.
>
> The pores of the skins of animals from cold countries are smaller and more closed than those of warm climates, and for that reason the skins are susceptible of greater brilliancy. It is absolutely necessary that the waters employed in dyeing be entirely free from salt.
>
> After the skin is dyed and dried it is stretched back and forth over a tool called "palete," which is a curved knife with a dull edge; and this operation, in connection with the ingredients it has received in tanning and dyeing, gives it softness and pliability.
>
> Gloves are cut by dies of the Fouvin system, as a rule, but they are sometimes cut by hand. The French system of glove-making is the one generally followed in Spain.
>
> For sewing the gloves pedal machines similar to the ordinary sewing machines are used, and for silking them common embroidering frames.
>
> A dozen tanned kid skins cost from 25 to 30 pesetas. They will make from twenty to twenty-four pairs of gloves. A dozen tanned lambskins cost about the same, but will make from forty-four to forty-eight pairs of gloves.

Embroidering silk costs 45 pesetas per kilogram; anilines of various colors, 19 pesetas per kilogram; blue aniline, 50 pesetas per kilogram; various dyewoods, 50 centimes per kilogram; Brazil wood, 1 peseta per kilogram; fasteners (Fermoir) for gentlemen, 4 pesetas per gross; fasteners (Fermoir) for ladies, 3 pesetas per gross; buttons for ladies, 45 centimes per gross; buttons for gentlemen, 55 centimes per gross.

Glove-cutters work by the piece. A cutter commences at 7 a. m. and can have cut by 7 p. m. twenty pairs of gloves. The prices for cutting are as follows: Per pair of two buttons, 25 centimes; of three buttons, 30 centimes; of four buttons, 35 centimes; of five buttons, 40 centimes; half arm, 75 centimes; full arm, 1 peseta. The average earnings of a good glove-cutter are 8 or 9 pesetas per day.

A dyer receives for each dozen of kid skins dyed 3 pesetas, and for each dozen of lamb skins 4.50 pesetas. In a day of fourteen hours the average dyer can dye a dozen of each kind, and must spend for eggs, coal, color, and water 2 pesetas, leaving clear for his work 5.50 pesetas.

The sewing women earn for each pair of two-button gloves sewed and silked 40 centimes; for each button added to the length of the glove there is also added 5 centimes to the price of sewing and silking. The average work of a woman is eight pairs, this giving her for twelve hours work 3.50 pesetas.

Retail prices of gloves are as follows:

Description.	Price.	Description.	Price.
Kid:		Lamb:	
Silked—	*Pesetas.*	Silked—	*Pesetas.*
2 buttons	3.00	2 buttons	2.50
3 buttons	4.00	3 buttons	3.00
4 buttons	4.50	4 buttons	3.50
5 buttons	5.00	5 buttons	4.00
Not silked—		Not silked—	
2 buttons	2.50	2 buttons	2.00
3 buttons	3.50	3 buttons	2.50
4 buttons	4.00	4 buttons	3.00
5 buttons	4.50	5 buttons	3.50

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, July 29, 1892.

SEVILLE.

REPORT BY CONSULAR AGENT SCHMIDT.

The kind of skins mostly used are young sheep, and, as well as kid skins, are purchased ready for use in Catalonia, Valencia, and Granada. They used to be tanned here extensively ten years ago. This report refers only to the preparation of lambskins, and was given by an intelligent foreman who knows the whole trade. He said that to describe the treatment of the different kinds of skins—goat, kid, sheep, etc.—and give a correct idea of the details of the business, would require a volume. He offered to write the same for 500 pesetas, and I think he knows his trade well enough to do it. He said that salted skins are useless. His name is Antonio Garrido Cuenca, and his address is Calle Andueza No. 7, Sevilla. He took much pains, wasting a whole day with me in describing the following particulars of his trade:

Fresh and dry skins (not salted) are used for making gloves. To depilate the skins they are first put in water for twelve hours if they are fresh, and if dry twenty-four hours, after which they are thickly covered, on the inside, with still lime (*cal apagada*) and left in this state twelve hours folded up in a pile. If the climate or weather is hot, less time will be sufficient; but, if the weather or the climate is cold, they will require more time. After this operation the skins are thoroughly washed, and then folded over or hung over sticks to drip, after which the hair will be taken off, exercising care not to spoil or damage the outside. They are then put into lime pits with a small dose of lime.

Afterwards they are taken out and put into another tub with very clean water (from now on only the clearest and cleanest water is used for all operations). Skins are scraped twice on the inside with an edged knife and once on the outside with a blunt knife, the latter very softly. Between each scraping the skins are washed with clean water, giving them the usual dressing or finishing of this leather. After this they are put into a tub with clean water. For each ten dozen of skins half a fanega of bran is added and stirred with the skins until they have absorbed the bran on the inside. They are kept in this tub, according to the temperature of the weather, taking care when the fermentation begins, for the skins all come up, and must be immediately pushed down with a stick. This is to be repeated every time the skins ferment until they do not come up any more. Great attention must be paid at this moment, for it is the sign that the skins have stopped fermenting. They must be taken out immediately, for fear they might all spoil, and laid, one on top of another, on a table or bench to dry. They are then dressed on the inside, so as to scrape off the bran; but this operation must be done with more skill than before.

The skins are now ready to be tanned, and one by one, after scraping, they are thrown into a basket and put where they are kept out of the draft. Then take a tank holding about 120 pints of water, 6 pounds of alum, and 4 pounds of common salt and boil together until dissolved, bearing in mind to stir it up with a stick. Then put in the vessel where skins are going to be tanned 50 pounds of good flour and 5 dozen yolks of eggs and add water to both until they become a thick mass, after which add the 120 pints of water with the alum and salt, stirring it with a stick until thoroughly mixed; and, if too warm, allow to cool a little. This is sufficient for 10 dozen skins, which must be well bathed in the above mixture. When they are well soaked, a workman will pick the skins up one by one, without taking them out of the vessel, and place them at the other end of it; and while doing so he must strive to spread the skins without wrinkling them; leave them there six or eight hours, or the time considered necessary. After this operation they must be taken out one by one by two workmen, one catching hold of the head of the skin and the other the tail, and folded over a clothesline or sticks, inside out, in sheds in the shade in summer time and in the sun in winter, and when dry they will have the appearance of so many dry codfish. After this, to soften the skins, the workman must sprinkle them with water enough to moisten them and leave them covered over night with a cloth to retain the moisture. The next morning he commences to open, beat, or work them on the inside over the back of an oval bench with a round knife, shifting and pulling the skin over this machine with care, as there are some places that require less work than others, until it is as soft as silk. A man's labor for a day is about thirty-six skins. The wages paid are about 4 pesetas per day.

From the moment the skins are depilated an intelligent workman can tell which skins are useless and which are fit to make gloves, and, of course, he assorts them, throwing aside the defective and diseased ones.

Anilines and dyewoods, such as campeachy wood, yellowwood, and Brazil wood, are used in dyeing, and, if the water used in any of the operations is saline, it will not work; only sweet, clean, and clear water will give good results.

The skins, after dyeing, are softened in the same way as after tanning.

Gloves are cut by dies or machinery and leather distributed and stretched by hand. The cutting by piecework costs about 3 pesetas per dozen for short gloves and 6 pesetas for long gloves of from twelve to twenty-four buttons. The sewing of both lengths is 2 pesetas, and the silking or embroidering the chain 3 pesetas per dozen.

The cost of tanning the skins up to leaving them in the shape of dry codfish is about 4½ pesetas per dozen, and from there up to leaving them dyed and ready for use 5 pesetas per dozen more, including workmanship and materials used.

To combine the dyewoods to obtain the desired color solely by the four dyewoods mentioned requires practice. The colors are prepared with water in a tank and the skins soaked in it until they receive the shade required. Skins imitating natural color or leather are spread over a table and the color applied with a brush on the face of the skin until it attains the shade desired.

J. SCHMIDT,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Seville, July 23, 1892.

SWEDEN.

REPORT BY CONSUL SHEPARD, OF GOTHENBERG.

Kid gloves are made, in a limited way, in Gothenberg, Helsingborg, Malmo, and Lund, in this consular district, and with no new or specially improved appliances, and wholly from imported materials.

Gloves are cut mainly with dies, and are now generally sewed on machines purchased in Germany, which have a horizontal movement of needle, the table being much higher than in the ordinary sewing machine. Such machines have largely displaced the low-table, perpendicular-needle machines in glove-making.

No features of peculiar excellence are observed nor claimed for the Swedish-made gloves, and, indeed, they are not regarded as first class by the fashionable people here, who, as in some other countries, can only be fully satisfied with things that are German, French, or English.

The home product sells at the manufactories for an average of about $3.20 for women's and $3.60 for men's per dozen pairs. Women who sew them are paid from 33 to 40 cents for ten hour's work. There is an import duty of 75 cents per pound, weight of wrappers and boxes (if any) included, on gloves of foreign make.

Some coarse gloves of split calf, goat, and buck skin for men's and women's wear are made in Sweden, and occasional shipments of such have been made to the United States, invoiced at prices ranging from $6 to $9 per dozen pairs.

According to the latest statistics at hand, there were in Sweden 190 persons engaged and employed in the manufacture of gloves of all sorts.

Formerly some skins for kid gloves were tanned here, but of late years everything in that way has been imported ready for use from Russia or Germany, mainly from the latter country. There is no duty on dressed skins of this sort. Nothing is therefore to be learned here of the best, nor indeed of any, system or method of tanning and dressing skins for gloves.

Aniline coloring is not liked.

CHARLES H. SHEPARD,
Consul.

UNITED STATES CONSULATE,
Gothenberg, September 20, 1892.

MANUFACTURING IN HOLLAND.

REPORT BY CONSUL SCHLEIER, OF AMSTERDAM.

The accompanying report is in answer to the following communication received at this consulate on November 12:

> Kindly advise me what facilities I can enjoy in manufacturing in Amsterdam or neighborhood; also, what privileges does a naturalized American citizen have who was born in Germany, but has lived in the United States for the past ten years
>
> I am thinking of establishing a manufacturing business, and personally am an American, but some of my help are foreign born—that is, German—who I wish to take over with me. Could you tell me what wages I would have to pay to machinists, men, boys, women, and girls; also, the number of working hours per day and the usual time they begin and quit work?

In reply to the above letter asking what facilities this country offers to manufacturers, what wages are paid, etc., I must state that Holland is mainly a trading country. With a few exceptions, but little manufacturing is done here. This is owing to various reasons. The fact that Holland possesses no raw materials, such as minerals, coals, timber, etc., must be considered the first obstacle; then, being almost surrounded by countries where these resources do exist, like Germany, Belgium, France, and England, it stands to reason that a successful competition in manufacturing would be difficult, if at all possible. Connected with this is the fact that a tariff on imported manufactured articles will barely average 5 per cent in Holland, and, taking also into consideration that, while the wages are considerably lower than they are in the United States, but somewhat higher than in the abovementioned countries, as a general thing living is more expensive here than in England and on the Continent; and then, adding to this that the revenues necessary for the support of the Government and municipalities are mainly raised by direct taxation, from which not even the mechanic is excluded, it is easy enough to draw conclusions as to whether it would be advisable to remove a factory to this country.

The general public here are satisfied with the conditions as they exist, and, taking into consideration the circumstances and situation of the whole Netherlands, the Government of this country may be a very wise one.

T. M. SCHLEIER,
Consul.

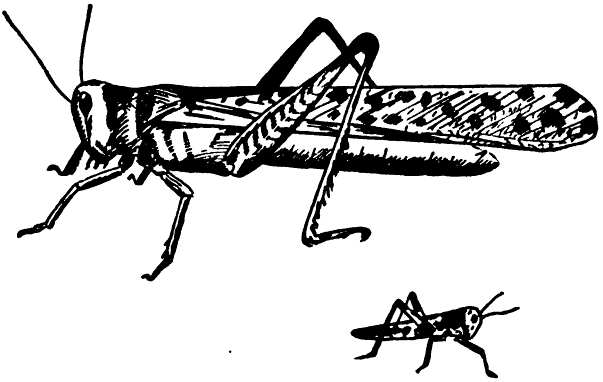
UNITED STATES CONSULATE,
Amsterdam, November 14, 1892.

LOCUSTS IN CHINA.

REPORT BY CONSUL JONES, OF CHIN-KIANG.

During the past summer immense tracts of the province of Kiang-Soo, in this consular district, have suffered from the depredations of locusts. Immediately about Chin-Kiang we have been living, so to speak, in the midst of them for nearly two months. Ample opportunity has thus been afforded me to study the character and habits of this voracious creature, and I have thought that a few notes on the subject might not be without interest.

Students of natural history are aware that the varieties of locusts (constituting the family of *Acridida* of orthopterous insects, and near akin to the grasshoppers and crickets) are very numerous. The Chinese locust is far from being a conspicuous insect, except by reason of its numbers and ranges. Its moderate size and solar tints contrast very strikingly with such splendid members of the family as abound in South America. The female is of a dingy brown hue and measures nearly 2½ inches in length, being distinctly larger than the male, whose color is a bright yellow. They fly in enormous swarms, taking advantage of a strong wind, when there is one, by keeping their bodies transversely to the current of air and being thus borne passively along; but they have a strong flight of their own, being able to move 20 to 30 feet per second on a calm day. To me the Chinese locust has every appearance of a grasshopper, with the addition of wings. I inclose a drawing of an adult and young one, made by a friend from two live specimens I gave him. The locust, as I remember him in America, was more like the *Cicada.* I regret the absence of authorities on the subject, which would perhaps enable me to write more intelligently.



Female locust and young of five days' growth (slightly enlarged). From nature.

When they make their appearance in a district there is consternation among the unfortunate peasantry, who assemble in the fields with wild clamor and din of gongs, armed with long bamboos with streamers attached, and vainly endeavor to drive off the terrible invaders who are settling down in myriads and devouring their crops before their eyes. No mere verbal description can convey a true idea of their countless numbers. Every leaf and twig is covered thick, giving the appearance of some hideous yellow fruit or plant. A faint sour smell like that of fermenting vegetable matter is always perceptible in the neighborhood. It comes, no doubt, from the droppings of the insect.

There is a curious and widespread belief among the Chinese in the existence of a "king" locust ("wang," as he is called), of colossal size and quasi supernatural character, who hovers invisible in the upper regions of the air, directing and controlling the migrations of the different swarms. I have heard that at some places the leading officials have publicly sacrificed and made offerings to the king of the locusts that he might be influenced to spare their localities.

Unlike his more omniverous congeners in Africa, the Chinese locust exhibits a very marked preference for plants of the grass family. Rice, wheat, and other cereals, bamboos, and reeds have their leaves eaten to the stump; and in the neighborhood of Chin-Kiang many of the hills have been stripped bare of grass, the other vegetables being left untouched. Beans, peas, cucumbers, and melons suffer but little, indigo and cotton not at all.

Two new broods, with an interval of about two months between, are usually produced in a season. I know of few sights more extraordinary than that of a swarm engaged in pairing. The air is filled with clouds of locusts drifting, circling, crossing, and recrossing, with a faint, whirring noise and settling on the ground in thousands of couples. The ground is carpeted thickly with them; you can not make a step without crunching heaps of them under your feet, while thousands more start up in pattering volleys against your legs, hands, and face.

The eggs are deposited in holes drilled by the female an inch or more deep in the ground. The time required for hatching depends entirely on the temperature. In very hot weather the new brood begins to make its appearance at the end of a week. At this stage they are very small, black, and as active as fleas, making extraordinary bounds by means of their muscular hind legs. At a little distance they suggest the idea of a swarm of black ants seized with sudden insanity. In shape they are exact copies of their parents, save for the want of wings. They are greedy feeders, and grow rapidly. By the eighth or ninth day wings have budded and the color begins to change, yellow spots appearing, and in about three weeks or a month they are full grown.

The destruction, by suitable measures, of this formidable pest, involving, as it does, the prevention of famines, fever epidemics, and riots, is a matter of grave public concern. One constantly hears of mandarins losing their buttons and being disgraced as the penalty of remissness or failure to destroy the enemy.

The Chinese consider that the visitation of the locusts is a "calamity from heaven, and that there is no help for it." Chinese records chronicle many instances of the appearance and the calamities inflicted by locusts in former times, but they have no peculiarly effective methods of destroying them. The Government usually issues proclamations ordering out the soldiers and encouraging the farmers to destroy them. The latter are given a bounty for their destruction.

The soldiers are used against the locusts, with their officers at their head, as against an adverse army in the field. Instead of a gun or a lance, however, each soldier is armed with a coarse hempen bag, attached to a bamboo pole, which, with wide-open mouth, is waved back and forth among the swarms until filled, when they are killed, and the action renewed.

In this section of the province the army has taken the field, and the district magistrate has taken up his quarters in the country where the locusts are thickest to overlook the work of destruction and to pay to the farmers the bounty.

The farmers use large brooms made of bamboo twigs and other bushes, and each armed with this weapon goes forth to slaughter. When killed and collected they are paid for by weight, which is at the rate of 40 cash, or 4 cents, per pound. The locusts' eggs are dug up and paid for on a similar scale.

During a walk on the hills one day I came upon a spot more than usually covered with locusts. At a distance I saw two or three men and as many boys directing the march of a small army of ducks, which they do by the use of long bamboo poles and the voice. It is astonishing to see the absolute control they exert over the movements of the ducks and the apparent intelligence of the latter. From the opposite direction a small boy about 12 years of age, stark naked and burned by the sun to a dark bronze, lithe and beautiful as a young gladiator, bounded upon the scene. He saw the locusts and with a shrill yell called to the men directing the ducks. In a few moments the ducks came up. They fell upon the locusts, and in less than a minute every locust—and there were millions of them—had been gobbled up. The army of ducks seemed more efficacious in their destruction than the army of Chinese.

In one district near by it is prohibited to kill the ducks at such times, notwithstanding their value in the markets, and they are kept to use against the locusts. This district has one flock of 3,500 ducks.

It is greatly feared that much suffering will ensue and serious trouble will arise from the visitation of the locusts.

A. C. JONES,
Consul.

UNITED STATES CONSULATE,
Chin-Kiang, September 13, 1892.

LABOR IN SPAIN.

REPORT BY CONSUL NEWSON, OF MALAGA.

No intelligent statesman will deny the proposition that the greatness of a nation lies in the uplifting and prosperity of the masses, for where the people are depressed the nation becomes enervated, and, sooner or later, must sink either into bankruptcy or decay; while where the people are in a condition to live properly, to own small homes, and farms, who receive wages sufficiently large to educate their children and to pay their taxes, they become not only good citizens, but patriots, and under this form of government the nation lives and marches forward to greatness and to power. In this respect the United States present a striking contrast to all other nations of the world. In the United States good wages are paid, men own homes, cultivate their farms, educate their children, pay their taxes, are respected citizens, feel their responsibility, and are devoted patriots; while in many European countries men have no homes, very few farms, no money to educate their children, earn not enough to sustain life properly, pay heavy taxes, have no ambition to become good citizens, and hence execrate the powers that oppress them.

In Spain, for instance, the average workman gets from 44 to 60 cents per day, and almost everything is taxed—nothing is exempt.

The tendency of European depression is to swamp the American laborer through the influx of European workmen, who, getting but 40 or 50 cents per day, will emigrate to the United States by hundreds of thousands, and then, of necessity, will force down the wages of our own people. Nine-tenths of all the workmen in Spain to-day would emigrate to the United States if they had the means, and thousands upon thousands will leave England, Belgium, Germany, Italy, and other countries in the next five years to better their condition. They must, from the very nature of the case, work cheaper than our own workmen, and this must, of necessity, cheapen labor in the United States in spite of the best efforts of our wisest legislators.

It is to be feared that the American workman does not fully appreciate his position. He is uneasy, dissatisfied, breaking out into strikes, exhausts his resources, and then returns to work at wages six or seven times higher than his less fortunate fellow-workman in the old world. To all such I commend the following facts as to the condition of labor in sunny Spain.

Table showing daily wages of all classes.

Occupations.	Wages.	Occupations.	Wages.
Apothecaries*	$0.40 to $0.50	Laborers—Continued.	
Artisans (work on railroad tracks)	.30 to .35	Wharf men and bargemen—	
Blacksmiths and locksmiths	.60 to .70	In summer	$0.50 to $0.60
Brickmakers	.80 to 1.00	In winter	.15 to .25
Barbers (35 and 40 cents, with perquisites)	.50 to .55	Lithographers	.40 to .80
Bakers	.70 to .80	Machinists	1.20 to 2.40
Brewers	.35 to .50	Mechanics	.60 to 1.20
Butchers	.60 to .70	Marble-workers	.50 to .60
Chair-makers	.60 to 1.00	Masons, general work	.40 to .65
Cart-drivers (in summer)	.40 to .50	Millers†	.40 to .50
Coachmen	.50 to .55	Miners	.35 to .40
Private	.60 to .70	Nurses*	.15 to .20
Confectioners†	.70 to .80	Paper-hangers	.40 to .50
Cooks:*		Printers	.50 to 1.00
Private families	.80 to .90	Plumbers	.40 to .60
In hotels, first class	.80 to 1.20	Plasterers	.70 to 1.00
Females	.14 to .20	Sawyers	.40 to .60
Chambermaids†	.10 to .12	Seamstresses and milliners in private families†	.10 to .20
Coopers	.15 to .25	Servants, general work	.10 to .14
Coppersmiths	.40 to .60	Females	.08 to .10
Cabinetmakers	.85 to .90	Girls	.05 to .06
Carpenters	.60 to .70	Boys	.05 to .07
Boys	.10 to .15	Shepherds	.10 to .15
Carriage-painters	.80 to 1.00	Shipwrights	.80 to 1.00
Carriage-builders	.70 to .80	Soap-makers	.40 to .60
Calkers	.80 to 1.00	Stonecutters	.50 to .80
Country drivers†	.10 to .15	Sailmakers	.60 to .70
Clerks in dry goods stores, etc.*	.50 to 1.00	Shoemakers	.50 to .60
Clerks in fancy shops, etc	.50 to .65	Boys	.15 to .16
Cotton factories:		Girls	.15 to .16
Weavers	.40 to .70	Seamstresses, etc., in public stores	.20 to .30
By piece	.85 to 1.00	Silversmiths	.80 to 1.00
Women	.20 to .30	Track-layers, city railway	.40 to .45
By piece	.25 to .50	Turners	.50 to .60
Boys and girls	.10 to .15	Tin-makers	.50 to .60
Dairymen	.30 to .40	Tramways:	
Druggists*	.50 to .80	Drivers	.50
Dyers	.45 to .60	Revisers	.50
Electric works	.60 to 1.00	Upholsterers	.80 to 1.30
Farriers	.40 to .60	Vineyard men:	
Farm and orchard hands†	.40 to .60	Summer	.40 to .75
Gas-lighters	.40 to .50	Winter (and found)	.20 to .30
Gas-fitters	.40 to .45	Harvesters	.40 to .45
Glaziers	.35 to .40	Watchmakers	.50 to .70
Gardeners, first class	.80 to .95	Whitewashers	.50 to .70
Grinders	.35 to .40	Waiters in hotels, etc. (20 to 25 cents, with perquisites)	.60 to .70
Gas-workers	.40 to .50	Workers in tanneries	.60 to .80
Harness and saddle makers	.60 to .70	Wood-choppers†	.40 to .50
House-painters	.50 to .60	Washerwomen	.20 to .30
Hatters	.60 to 1.20	Policemen ‡	.45
Iron-molders	.60 to 1.00	Corporals	.50
Laundresses†	.20 to .25	Lieutenants	.60
By piece	.02 to .05	Captains	.80
Laborers:		Chief	1.00
In wine stores	.35 to .40		
In stores	.40 to .50		

* Three meals. † Two meals. ‡ Policemen furnish their own uniforms.

The cost of meals is 50 centimos, or 10 cents, per meal. Meals in restaurants cost from 45 to 60 cents; in hotels, from 75 cents to $1.

The average of all the wages enumerated is from 44 cents to 60 cents per day. Of course, in some instances two and three meals per day are furnished, but in a large majority of cases no meals are given.

Table showing hours of labor.

Occupations.	Summer.	Winter.
	Hours.	*Hours.*
Common laborers	10 to 13	9 to 10
Field laborers	10 to 13	9 to 10
Artificers	9 to 10	8 to 9
Clerks in dry-goods stores, grocers, and fancy shops	13 to 14	13 to 14
Bookkeepers	6 to 8	6 to 8
Clerks in counting houses	11 to 12	10 to 11

The average number of hours worked per day is as follows: Summer, from 10 to 12; winter, from 9 to 11.

COST AND MANNER OF LIVING.

The meals of common laborers (rustics), earning 35 and 40 cents per day (two meals), are as follows:

Breakfast consists of fried fish, bread, a bowl of poor coffee, an orange, and garlic. It costs 7 cents.

Dinner consists of soup composed of bread or macaroni, or soup mixed with mussels (shellfish), or soup of bread mixed with cheap fish, all dressed with green pepper, onions, and tomatoes; some poor coffee or wine; very rarely beef or pork; and garlic sparingly. It costs 10 cents.

The meals of those earning 50 to 70 cents per day (two meals) are as follows:

Breakfast is same as above, besides a fried egg, with onions and tomatoes; or fried liver, a bowl of poor coffee, and some fruit. This meal costs 12 cents.

Dinner at night consists of a hodgepodge (*oya*) composed of kidney beans, pumpkins, eggplant, onions, tomatoes, or boiled cabbage (with beef or pork), a glass of wine or coffee. Fried potatoes and eggplant are generally used. All are spiced with garlic. Lettuce is very abundant and is in much demand, and this and all other vegetables can be had through the entire year. The cost of this meal is 15 cents.

The meals of peasantry in the field in summer are as follows:

Breakfast consists of morsels of fried pork (*migas*) with crumbs of bread fried in a pan, seasoned with olive oil, salt, and pepper, and sweet boiled potatoes, all tinctured with garlic. There is no coffee or wine. It costs 7 cents.

Dinner consists of a hodgepodge composed of pork, with all kinds of vegetables, such as kidney beans, green beans and peas, tomatoes, and bread made of Indian corn. No wine or coffee is given. A little garlic is given. The meal costs 10 cents.

At sunset they are provided with *ajo blanco* or *gazpacho* (slices of bread in water seasoned with oil, vinegar, green pepper, chopped cucumbers, onions, and tomatoes). This dish is very cool and refreshing, particularly for the peasantry, and is usually spiced with garlic. It costs 10 cents. It is also a great favorite with the well-to-do classes, even among the rich, modified as follows: Bread in water, sweet, refined olive oil, good vinegar, and pounded almonds, including onions, cucumbers, green pepper, tomatoes, etc., costing 15 cents.

A very poor man can live on 5 cents per day, but it would not be considered living in the United States. The laboring classes can get along comfortably well on 10 to 15 cents per meal, and, as the climate the year round is warm, little clothing is required. Rents for the poor range from 75 cents to $1 and from $1.50 to $2 per month. The wife usually takes in washing, and the girls can get 10 cents per day when work is to be had; so the poor just live, but with no hope of ever getting beyond their present condition, unless they make a "strike" in a lottery, and that is as one in ten thousand.

Clerks in stores, who work long hours, get three meals per day, and generally pretty good ones, costing about 15 cents per meal.

At restaurants a good beefsteak, two eggs, fried potatoes, good bread and butter, with a cup of coffee, costs from 50 to 60 cents. Hotels charge from 50 cents to $1 per meal.

Boarding houses range from 30 to 40 cents per meal; including bed, from 80 cents to $1 per day.

As a general rule, living in Malaga is as expensive as in the United States, both as to eating and clothing.

POPULATION OF MALAGA.

The following statistics are from the latest official report for 1891:

The population of Malaga is as follows: Males, 64,907; females, 70,092; total, 134,999. In the province the population is: Males, 227,997; females, 232,987; total, 460,984. The estimated number, including Malaga, is 595,984.

The estimated number of all classes who labor is as follows: In the city of Malaga, two-thirds, or 90,000; in the province four-fifths, or 368,787; total, 458,787. This leaves in the city of Malaga 45,000 who are not classed as laborers, although they labor in their especial callings, and in the province 119,200 who are not included in the list of common laborers. In both these exempted cases children are counted.

The province of Malaga comprises 5 cities, 80 villages, 22 towns, 2 hamlets; total, 109 places.

In the time of the last revolution—in 1872—when the revolutionists had control of the city and of the province of Malaga, a commission was appointed to regulate the hours of labor, and the time fixed was from 7 o'clock in the morning until 4 o'clock in the afternoon, with one hour for breakfast, one hour for dinner, and fifteen minutes in each hour for smoking cigarettes, which would make a total day's work of five hours. Of course, the revolution did not win, and the mandate of the commission never went into effect. The pendulum has now swung the other way, and workmen labor from ten to thirteen hours, having, of course, some time out of these hours for meals. I observe a very decided socialistic tendency among the workmen, but great lack of harmonious action, and this prevents them from making any advancement toward shorter hours or larger pay.

T. M. NEWSON,
Consul.

UNITED STATES CONSULATE,
Malaga, November 10, 1892.

FERTILIZING EXPERIMENTS IN GRAPE CULTURE.

REPORT BY COMMERCIAL AGENT SMITH, OF MAYENCE.

As is well known, enormous quantities of potash minerals are found in the celebrated salt mines of Stassfurt, Prussia; and, as potash is recognized as one of the substances entering largely into the aliment of plants, the potash manufacturers at Stassfurt engaged in working up the minerals obtained from the mines there are seeking to extend their output by getting the various German states and other governments, so far as they can, interested in the subject of experimenting with potash in the fertilization of plants and bringing its serviceableness more generally to public attention. Their aim seems to be to get the different governments to agree upon a binding and common plan of action in respect to particular plants and carrying it to a successful issue, whereby not only will benefit accrue to the farmer and fruit-grower, but an important German industry be highly stimulated. To this end a conference of delegates from various German states was held at Mannheim in December of last year in respect to tobacco, brought about by these potash manufacturers, at which our consul-general at Frankfort, Mr. Mason, was present as an invited guest, and upon which he has made reports, which appeared in CONSULAR REPORTS for March, 1892.

On the 30th of September last another such conference was held here in Mayence in relation to experiments on the grape, which I attended in like manner as Mr. Mason did the preceding one at Mannheim, simply as a listener and spectator in an entirely informal manner, without actually participating in the gathering in any way.

The conference, which met in a Government building at Mayence, was a small affair and lasted about three hours. It was called together by one of the potash manufacturers, and the consideration and adoption of a set of rules which had been drafted and laid before the conference for approval was undertaken, but no conclusion was reached. There were nine rules proposed for adoption; but so much time was consumed in the discussion of the first two that the others had to be referred to a special committee to consider and report upon at a subsequent meeting of the conference, to be called when they should have completed their labors.

At the conference there were fourteen gentlemen present besides myself. Prussia, Bavaria, Würtemberg, Hesse, Alsace-Lorraine, the German Agricultural Society, the German Viticulturists' Union, and the potash manufacturers were represented; Baden and Switzerland, although not represented, sent messages expressing interest in the object had in view by the conference; and officials in the agricultural department of Austria-Hungary had done so verbally, it was said. An Italian official was also present.

These gentlemen appeared to be all in a manner informally come together; *ad referendum*, as they expressed it, leaving it to the states they represented to be governed by the conclusions reached as they saw fit. A stenographer was present, who noted down all that was said and done. As we were informed that the proceedings would be published, I delayed writing to the Department until this report should be in my hands, supposing I would have it in a few days; but it was not until December 5 that it came to hand.

To come to an agreement respecting the course to be pursued in experimenting with tobacco was a much easier matter, it is said, than to agree as to what should be done in regard to the grape. To set up rules of experiment for the grape is difficult, on account of its many varieties, the different situations (as highland or lowland), soils, climates, diseases, insects, depth of root, etc. Therefore, while the tobacco conference was able to define in a short time what could and should be done with regard to tobacco, the grape conference found itself obliged to refer the question of its plan of action to a special committee, as adverted to above.

The vineyards of Germany have run down greatly, it is said, and a means must be found of revivifying them. Experiments so far with artificial manures have accomplished little, and have not been encouraging. Careful experiments in fertilization have been made in the Government vineyards, but no success met with, it was said at the conference. The grape sends its roots so far down into the earth that it has not been possible, except in the case of very soluble Chile saltpeter, to get the fertilizers 6 to 9 feet down into the ground, where the tender rootlets are. More soluble fertilizers, however, are now being made, and it is hoped that better results will be achieved with them.

Isolated fertilizing experiments have been made, but none on a general and uniform basis; and in the present instance, while attention is to be directed chiefly to potash, because the grape is known as a potash plant, other fertilizers will also be used. Some varieties of grape require from three to four times as much potash as others, and it is a little singular that hardy American varieties contain less potash, less phosphoric acid, and more nitrogen than European grapes.

Although several speakers at the conference declared that no satisfactory results had been obtained in experimenting on the grape, Dr. Barth, in charge of the imperial agricultural experimental station at Rufach, in Alsace-Lorraine, seems to be of a different opinion concerning experiments conducted in 1887–'90 by himself. He has been engaged in fixing anew, by a close study of the grape, the kinds and amount of aliment required by it; and he finds, it is said, that the most important varieties consume per vine in the course of a year the following amounts of nitrogen, potash, etc.:

Description.	Nitrogen.	Potash.	Phosphoric acid.
	Grams.	*Grams.*	*Grams.*
370 grams of new prunings	1.24	1.52	0.42
220 grams of new shoots	1.88	0.61	0.21
1 liter of must	1.07	2.04	0.48
300 grams of grounds	3.7	3.36	1.5
500 grams of dry foliage lost in fall	6.28	5.08	2.2
Total	14.17	12.61	4.81

For an area of ground containing about 1,000 vines that would be, in round numbers, a loss annually of 1.4 kilograms (3 pounds) of nitrogen, 1.3 kilograms (2⅞ pounds) of potash, and 0.5 kilograms (1.1 pounds of phosphoric acid).

Dr. Barth says that in stable manure there is, on an average, 0.5 per cent of nitrogen, 0.5 per cent of potash, and 0.2 per cent of phosphoric acid. To meet this want 2½ kilograms (5½ pounds) of stable manure would be annually required per vine, or about 2½ tons per thousand. The procuration of such large quantities is hardly possible, and would involve such a large expenditure of money that there would not be any profit in the vineyards. Stable manure makes the ground warm and light, and is very necessary—in fact, indispensable—to the well-being and growth of the vine, especially where there is a tendency on the part of the soil to become firm and hard; but this want, it is said, is completely answered when every four years 400 kilograms (880 pounds) of stable manure per are (about one-fortieth of an acre) is spread over a vineyard. But, while this amount of manure is all that is necessary to properly warm and soften the soil, it does not afford sufficient aliment to the plant, as it contains not more than half the quantity of nitrogen, potash, and phosphoric acid needed by the vines; there being in stable manure, as said above, only 0.4 to 0.5 per cent of nitrogen, 0.5 per cent of potash, and 0.2 per cent of phosphoric acid, when double that quantity is really what the vines ought to have, to supply which lack resort should be made to artificial—that is, chemically prepared—fertilizers, which are well adapted to the soil and cheaper than natural manures.

The grape requires much potash, and, where soil is poor in potash, a liberal fertilization with lime is not only necessary, but has a great deal to do with the quality of the must. It is claimed in Germany that the finer varieties of grapes, such as the White Riesling and the Red Burgundy, are characterized by a larger percentage of potash than the inferior sorts. So, by fertilization with potash, an enrichment of the juice of the grape would be achieved. Of phosphoric acid much less is needed; but phosphoric acid, as well as potash, has more to do with the maturing of the grape than nitrogen. Potash and phosphoric acid do not, however, pass through the soil easily, and unless the earth in vineyards be well worked and loosened, they remain largely in its upper crust and fail to get down to the deep roots of the vine.

Nitrogen, also, must be given to the grape, but only in that degree in which, considering the character of the particular soil, it will be of advantage. An excessive supply of nitrogen incites the vine to growth rather than to fruit-bearing.

Dr. Barth made his experiments from 1887 to 1890. Twenty-two parcels of ground, each 1 are in size, were planted with 100 vines apiece. These parcels were each given in 1887 a manuring of 400 kilograms (880 pounds) of stable manure. Then in 1888, 1889, and 1890 they were given chemical fertilization as in the following table and the products compared with grapes on land which had been fertilized with stable manure only. From grapes given 400 kilograms of barnyard manure per are in 1887 and nothing further the product realized in 1890 per one hundred vines was 80 kilograms of grapes with a specific weight of 70° Oechsle and 1.17 per cent of acidity. Compared to this the chemically fertilized vines showed results as in the following tabular statement:

Table showing results of chemical fertilizing.

Parcel.	Amount of fertilization per are in 1890.	Amount of fertilization per are in 1888 and 1889 each, with 400 kilograms of barnyard manure given in 1887.	Grapes produced per 100 vines.	Excess over vines manured with barnyard manure only.	Quality of must.	
					Specific weight.	Acidity.
			Kilos.	*Kilos.*	*Deg.**	*Per ct.*
1	8 kilograms of Chile saltpeter	6 kilograms of potash magnesia and 5 kilograms of superphosphate.	114	34	70	1.13
2	do	6 kilograms of Chile saltpeter, 4 kilograms of potash magnesia, and 5 kilograms of superphosphate.	88.5	8.5	75.5	1.19
3	do	200 kilograms of peat, 4 kilograms of potash magnesia, and 12 kilograms of Thomas powder.	95.3	15.3	69.5	1.12
4	6 kilograms of Chile saltpeter	3 kilograms of Chile saltpeter, 6 kilograms of potash magnesia, and 5 kilograms of superphosphate.	110	30	72.5	1.15
5	4 kilograms of Chile saltpeter	400 kilograms of barnyard manure.	81	1	73.5	1.23
6	do	200 kilograms of barnyard manure and 3 kilograms of Chile saltpeter.	95	15	71.5	1.24
7	7 kilograms of sulphate of ammonia.	5 kilograms of sulphate of ammonia, 8 kilograms of potash magnesia, and 5 kilograms of superphosphate.	107	27	68.5	1.18
8	do	5 kilograms of sulphate of ammonia, 4 kilograms of potash magnesia, and 5 kilograms of superphosphate.	90	10	78	1.26

*Oechsle.

Table showing results of chemical fertilizing—Continued.

Parcel.	Amount of fertilization per are in 1890.	Amount of fertilization per are in 1888 and 1889 each, with 400 kilograms of barnyard manure given in 1887.	Grapes produced per 100 vines.	Excess over vines manured with barnyard manure only.	Quality of must.	
					Specific weight.	Acidity.
			Kilos.	*Kilos.*	*Deg.**	*Per ct.*
9	3.5 kilograms of sulphate of ammonia.	400 kilograms of fecal muck	98	18	76.5	1.12
10	do	200 kilograms of fecal muck and 3 kilograms of Chile saltpeter.	96.2	16.2	69	1.22
11	8 kilograms of Chile saltpeter and 12 kilograms of kainit.	6 kilograms of Chile saltpeter and 5 kilograms of superphosphate.	85.5	5.5	74.5	1.11
12	do	400 kilograms of peat, 4 kilograms of potash magnesia, and 12 kilograms of Thomas powder.	105.5	25.5	73.5	1.28
13	6 kilograms of Chile saltpeter and 12 kilograms of kainit.	4½ kilograms of Chile saltpeter, 4 kilograms of potash magnesia, and 5 kilograms of superphosphate.	97	17	73.5	1.12
14	4 kilograms of Chile saltpeter and 12 kilograms of kainit.	200 kilograms of barnyard manure and 5 kilograms of superphosphate.	95	15	73	1.21
15	8 kilograms of Chile saltpeter, 12 kilograms of kainit, and 12 kilograms of Thomas slag.	6 kilograms of Chile saltpeter and 4 kilograms of potash magnesia.	85	5	70.5	1.11
16	8 kilograms of Chile saltpeter, 24 kilograms of kainit, and 5 kilograms of Thomas powder.	6 kilograms of Chile saltpeter, 4 kilograms of potash magnesia, and 10 kilograms of superphosphate.	99	19	72.5	1.18
17	6 kilograms of Chile saltpeter, 12 kilograms of kainit, and 5 kilograms of Thomas powder.	6 kilograms of Chile saltpeter, 8 kilograms of potash magnesia, and 5 kilograms of superphosphate.	108	28	72.5	1.25
18	7 kilograms of sulphate of ammonia, 12 kilograms of kainit, and 5 kilograms of Thomas powder.	6 kilograms of Chile saltpeter, 4 kilograms of potash magnesia, and 12 kilograms of Thomas powder.	94	14	75.5	1.13
19	do	5 kilograms of sulphate of ammonia, 4 kilograms of chloride of potassium, and 5 kilograms of superphosphate.	98	18	75	1.21
20	3½ kilograms of sulphate of ammonia, 12 kilograms of kainit, and 5 kilograms of Thomas powder.	200 kilograms of fecal muck and 4 kilograms of potash magnesia.	107	27	69	1.36
21	5 kilograms of sulphate of ammonia, 12 kilograms of kainit, and 5 kilograms of Thomas powder.	100 kilograms of fecal muck, 3 kilograms of Chile saltpeter, 4 kilograms of potash magnesia, and 12 kilograms of Thomas powder.	104	24	70	1.23
22	3½ kilograms of sulphate of ammonia, 24 kilograms of kainit, and 5 kilograms of Thomas powder.	200 kilograms of fecal muck, 4 kilograms of potash magnesia, and 12 kilograms of Thomas powder.	103	23	68	1.30

*Oechsle.

From these experiments the following conclusions are drawn:

(1) That the grape in good condition requires annually 1.4 kilograms (3 pounds) of nitrogen, 1.3 kilograms (2⅞ pounds) of potash, and 0.5 kilogram (1.1 pounds) of phosphoric acid per are.

(2) That, if stable manure alone be used, 250 kilograms (550 pounds) yearly, or 750 kilograms (1,650 pounds) every three years, are necessary, which is too expensive an outlay.

(3) That the stable manure at command permits, on an average, the application of but 400 kilograms (880 pounds) of manure per are every four years, which is sufficient only for physical effects upon the ground, and must be aided by chemical manures.

(4) That, to make up for the lack of barnyard manure, potash and phosphoric acid should be supplied the soil every two to three years and nitrogen every year, according to need.

(5) That the potash may be in the form of kainit—12 to 18 kilograms (26 to 40 pounds) in two years—only where the soil is light and sandy. Where the soil is firmer and in the better class of vineyards concentrated salts of potassium are to be preferred. Kainit having proved efficacious, as satisfactory an effect is to be expected from the cheaper chloride of potassium (80 per cent) as from the chlorine-free salts. The are requires every two years 3 to 5 kilograms (6½ to 11 pounds) of sulphate of potash (90 per cent strong) or chloride of potassium (80 per cent), that is to say, 6 to 10 kilograms (13 to 22 pounds) of potassium-magnesium sulphate.

(6) Phosphoric acid, instead of being supplied in the form of superphosphate, 3 to 5 kilograms (6½ to 11 pounds) of 20 per cent strength, can be given with equally good effect in the slow-working form of Thomas slag or bone dust, 6 to 8 kilograms (13 to 17½ pounds), every two years.

(7) In the matter of nitrogen, 4 to 6 kilograms (8½ to 13 pounds) of Chile saltpeter or sulphate of ammonia are annually requisite or organic nitrogenous manure.

(8) In such fertilization the following course should be pursued: In the first year barnyard manure with a potash phosphate, spread, if possible, in the fall or winter; in the second year, a nitrogenous fertilization only in the spring; in the third year, fertilization with a potash phosphate and nitrogen; in the fourth year, nitrogenous fertilization; and in the fifth year, a repetition of manuring with stable dung.

(9) The physical effect on the soil exerted by stable manure can be accomplished in a like favorable manner with muck. Fecal muck from privy sinks is said to afford as good manure as stable dung; otherwise the muck must first be converted into a compost. The muck is mixed with the necessary fertilizing salts of potassium and Thomas slag, together with whatever waste material is at hand, and a proper amount of quick lime. Kept moist and stirred up frequently for a year, it becomes quite a useful vineyard manure, to which whatever nitrogen is lacking can subsequently be supplied.

(10) As a substitute for insufficient barnyard manure green material, such as clover or grass, can in like manner be very advantageously employed. A corresponding stronger fertilization with potash phosphate must, however, then be applied; but there is a compensating gain in the large amount of nitrogen and humus forming material cheaply obtained from the chopped up grass or clover. Red clover is excellent for the purpose.

Artificial fertilizers are said to be cheaper in Germany than anywhere else in the world. The Empire possesses immense deposits of potash and phosphorite; and the iron works of the country turn out enormous amounts of Thomas slag, which is ground up into a powder possessing remarkable fertilizing properties. The country also suffers little from dryness, and the atmospheric precipitations are of great advantage in conducting the fertilizers into the soil.

JAMES H. SMITH,
Commercial Agent.

UNITED STATES COMMERCIAL AGENCY,
Mayence, December 8, 1892.

FRUIT TRADE OF HONDURAS.

REPORT BY CONSUL BURCHARD, OF RUATAN.

The trade between this consular district and the United States has greatly decreased during the past six months. This is owing principally to the following causes: (1) The attempt to revolutionize the Government, which commenced in June last, and the capture by the rebels of the ports of Ceiba and Truxillo, which were held by them for more than two months; (2) the hurricane of the 11th of October, which nearly destroyed the fruit crop, and deprived the people of their usual supply of bananas to carry on the fruit trade with the United States, which is the only industry worthy of mention in this district. Fortunately only the crop of one season was lost.

The banana plant is almost indestructible, and recuperates very quickly. The new crop will begin to develop in March next, after which there will probably be fruit in abundance, and the trade will revive again. A new supply of fruit will also be furnished by the Burchard Honduras Fruit Company, which will add considerably to the exports from this district. I inclose a list showing the number of plantations and acreage of each which has been planted by the said company and its colonists during the current year. This new American enterprise promises to be successful and to fully realize the hopes of its founders. New colonists are constantly arriving, and permanent improvements are rapidly progressing within the district of the concession. A steamship from New Orleans, with 18 colonists, 45 negro laborers, and a cargo of supplies for the company and the colony, arrived and discharged at Port Burchard last week.

The Government is affording special protection and encouragement to the company. All supplies, imported for its use, are passed free of duty. By a decree of the 23d of November a port of entry will be opened in the Burchard concession on January 2, 1893. On and after that date vessels can enter and clear at Port Burchard without being obliged to make an entrance at Ruatan or Truxillo, as heretofore.

The company has a large and commodious hotel for the accommodation of strangers.

It also has offices, shops, and a spacious storehouse supplied with a full assortment of American merchandise for the local trade, which is already large and rapidly increasing.

Table showing plantations made during the current year by the Burchard Honduras Fruit Company and its colonists in the district of San Grelaya.

Names.	Plantations.	Acres.
Burchard Honduras Fruit Company	Bananas	134
Do	Cocoanuts	76
Dr. George L. McCuen	Bananas	30
Hart & Clark	do	28
William Mosely	do	8
A. E. Dunning	do	12
Jos. A. Shade	do	16
A. Allen	do	14
Bassworth & Avery	do	12
G. Lewenberger	do	16
F. Kirkpatrick	do	12
Total in the district of Tocomacho		358
Burchard Honduras Fruit Company	Bananas	52
Middaugh & Co	do	22
Johnson & Co	do	18
John Smith & Co	do	20
F. E. Bluet	do	16
H. Y. Forceland	do	30
Fertner & Smith	do	16
C. Cruz	do	12
J. A. Rosales	do	16
C. & P. Munoz	do	18
W. Mosely & Co	do	20
C. C. Williams	do	16
F. O. Williams & Co	do	18
C. W. Dunning	do	28
Allen & Co	do	12
G. Lewenberger	do	12
C. Thoustrom & Co	do	92
Mayén y Cabañas	do	10
Samuel Wesley & Co	do	22
William Wildt	Cocoanuts	14
Bruner & Co	do	200
Philip S. Burchard	do	40
Macedoño Flores	Bananas	12
Total		968

WM. C. BURCHARD,
Consul.

UNITED STATES CONSULATE,
Ruatan, December 27, 1892.

CREAM-OF-TARTAR MANUFACTURE.

The reports herewith were sent in reply to the following circular:

DEPARTMENT OF STATE,
Washington, June 21, 1892.

To the consular officers of the United States in Europe.

GENTLEMEN: The California State board of viticultural commissioners have requested the Department to secure, through its consular officers in the wine-producing districts of Europe, certain information concerning the manufacture of cream of tartar. The secretary of the commissioners, in his communications to the Department, gives the following points, which will enable you to appreciate the scope which your investigations will assume and the value of the reports which you will submit in answer thereto:

"The manufacture of cream of tartar from grape pomace and from lees is beginning to assume fair proportions in this State. With our wine-makers the utilization of their by-products is becoming of more importance year by year, and more attention and study is devoted to the subject.

"We are greatly at a disadvantage from lack of information. This commission is making as close a study of the question as is possible under the circumstances, but, as with all new industries, valuable information is difficult to obtain.

"The Department of State can assist us very materially by instructing its consuls in the principal wine-producing countries of Europe to collect information on the subject. Every source of commercial importance, such as pomace, lees, etc., should be covered, and the points desired are, in brief:

"(1) In regard to the extent of the industry.

"(2) When principally carried on. (Any statistics as to production will be very acceptable.)

"(3) Any description of process or processes obtainable, either from public prints or journals, or from scientific publications, from private information or observation.

"(4) Any history of the development of the industry, the names of any persons who have been or are actively engaged in it, or who have contributed in any important way to its development.

"(5) Any patents that may have been granted to inventors, and any description of machinery used, etc.

"(6) Is the work done by a few large or only by small concerns? (Remarks, suggestions, criticisms, cost of operations, etc.)

"Any information that can be furnished will be of interest and value to the viticulturists of the State, who represent an industry of national importance.

"Of the extent and use of cream of tartar in the manufacture of baking powder and for other purposes you are no doubt aware. Our annual imports of argols, or crude tartar, are very large, and, were definite information at hand, a profitable industry can be built up here."

I am, etc.,

WILLIAM F. WHARTON,
Assistant Secretary.

AUSTRIA-HUNGARY.

REPORT BY CONSUL-GENERAL GOLDSCHMIDT, OF VIENNA.

The manufacture of cream of tartar, as well as other compounds of tartaric acid, may be reckoned as holding a foremost rank among the industries by which the product of the wine-grower is sought to be more generally utilized. Detailed official statistics have as yet not been forthcoming; but it may be stated, as in some way showing the extent of this industry, that in 1892 lees (chiefly Italian and Roumanian) were imported to the amount of 14,684 metric centners, as against 2,604 metric centners in 1891, and that the quantity of tartaric acid supplied to foreign countries amounted to 2,907 metric centners in 1892, compared with 1,786 metric centners in the previous year. At the present juncture, however, the prospects of the industry are not considered favorable. The scarcity of tartar in the shape of argols, or as obtainable from pomace and lees, seriously affects production of the finished and, from a commercial aspect, more valuable products. Pomace (husks, stalks, and seeds) might be worked with profit but for the necessity, on the part of the numerous owners of small vineyards, to make from it cheap wines to give to their laborers as part of their wages. Owing, no doubt, to these causes, the diminution in the exports of crude tartar to the United States alone amounted to $124,800, while the total exports show the striking figures of 4,076 metric centners in 1891, as against 781 metric centners last year.

In this connection the large increase in the import of lees, as stated above, is a significant fact, and one which affords proof that the wine-grower on a small scale in Austria, with his semipatriarchal views and no capital, will be driven out of whatever place he now holds, and that an industry built up on modern principles has every chance of proving successful.

The time when tartar is made from pomace and lees extends from the middle of October to about the end of February. The vintage being over and the different stages of fermentation for so-called young wines past, the process of drawing off the wine is proceeded with, and the manufacture of by-products is begun. But in most cases wines and spirits—the latter being a widespread and remunerative industry all over Austria and carried on by a great number of small distilleries—are first obtained, whereby the time at disposal is delayed until February. This, of course, holds good only in manufacture on a small scale. In large factories, where dried lees are imported, no time limit need be observed, but in every case this perishable nature has to be taken into consideration.

A short summary of some of the processes relating to the tartrate series will, it is hoped, be found useful. According to Dal Piaz, in "Verwertung der Weinrückstände" (Residua in Wine Production), these may be given as follows:

(1) Production of crude tartar from lees in connection with and after distillation. This formerly consisted in leaving the residue, or *Schlempe*, to cool down in the distilling pot, whereby cream of tartar ($C_4H_5KO_6$) formed in the shape of incrustations on the sides, or else filling the residue into wooden vats and then separating the similarly formed crystals by means of a hair sieve. But the crystals thus obtained are of very small size and impure through the presence of lees. A new method has therefore been warmly recommended, in which the lees, instead of remaining in the pot, are filled

in press sacks and pressed by means of a lever or screw-worked wine press, and after pressing out are placed in pans, whence, after cooling down, the tartar is obtained in the shape of loose crystals. The mother lye may be used a second time in distillation, instead of water, and the process repeated.

(2) In making tartrate of lime, which is an intermediate product of growing importance, about 2,500 kilograms of lees are placed in a wooden pan lined with lead of a capacity of 150 hectoliters. Dissolution is effected by about 50 kilograms of hydrochloric acid in a crude state, and the whole, with the water added, heated by the help of steam. An apparatus for stirring, which is fixed to the pan, expedites the process. Having been left undisturbed for an hour or so the classified lye is drawn off and lime added. The tartrate of lime thus formed along with chloride of lime is left to settle, and is separated by means of filtration.

(3) The manufacture of the acid, as made from tartar direct, is exemplified by the following formulas: For tartrate of lime, $2\ C_8H_5KO_{12}+2\ CCa O_8=C_8H_4K_2O_{12}+C_8H_4Ca_2O_{12}+2\ CO_2+2\ HO$; for converting normal (neuter) potash salt, $C_8H_4K_2O_{12}+2\ SCaO_4=C_8H_4Ca_2O_{12}+2\ SKO_4$; for tartaric acid, $C_8H_4Ca_2O_{12}+2\ SHO_4=2\ SCaO_4+C_8H_6O_{12}$.

The tartar is pressed through a sieve, then ground and placed in pans plated inside with lead and provided with an iron stirring apparatus worked by steam. Carbonate of lime is added gradually in the form of lime or ground marble, but in no case before the carbonic acid has ceased to froth. Boiling being continued for about an hour, the litmus test is applied, to be sure that all the acid potash salt has been neutralized.

In the preliminary process, as in the third for the acid, the correct quantities of the dissolvents should be adhered to. If too much lime is used, this will cause waste through increased quantities of sulphuric acid being required in the third stage, while on the other hand, any superfluous sulphuric acid would spoil the tartaric acid, give the lye a brown color, and thus mar the purity and color of the crystals.

Of the history of the industry few details could be obtained. As already mentioned, the acid is considered here as most valuable and consequently most fit to be manufactured wholesale. Since the process of isolating it from its acid (potash salt was first discovered by Scheele) its manufacture has been of prominent importance in Austria. The firm of Wagenmann & Seybel were the first to introduce its production on an improved modern basis. The experiments with regard to baking powder and its introduction into Austria, made by Dr. Medinger, a member of a prominent firm engaged in the trade, are noteworthy. Curiously enough, this undertaking, in like manner as that of supplying the United States with Austrian yeast, which was entered upon by a large brewery here, proved a complete failure.

Only one patent dealing with the manufacture of tartaric acid has been acquired in Austria, the patentee being the French chemist M. Naquet, and the method proposed consisting in the main in subjecting dextrine and similar substances to the action of nitric and diluted sulphuric acid. A description of this method can be found in the list of Austrian patents contained in the Illustrated Austro-Hungarian Patent-Blatt, volume 15, page 151.

The point at which, according to the opinion of competent authorities, it is likely to fail, lies in the difficulty of separating the oxalic acid which is left in combination with the final product. It is only worth alluding to as showing the activity displayed in this industry among those connected therewith and their belief in the possibility of its further development.

Large establishments are chiefly engaged in this industry; but, as already pointed out, the onward progress of the vine disease, which defies being checked by Government palliatives, greatly interferes with it. Satisfactory results in this industry, it is believed, can be obtained if it is carried on with special regard to adequate methods, cost of labor, and local circumstances, while at the same time the teachings of European scientists are made to combine in it with the common sense of Americans.

JULIUS GOLDSCHMIDT,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Vienna, February 25, 1893.

FRANCE.

REPORT BY CONSUL TRAIL, OF MARSEILLES.

In reply to Department circular, dated June 21, calling for a report on cream of tartar for the use of the California State board of viticulture, I have the honor to inclose two reports. The first is contributed by Mr. Arthur P. Haynes, of Santa Barbara, Cal., a former student of the University of Montpellier, France. Mr. Haynes has been studying the wine question in France for the past three years under the best conditions, Montpellier being in the center of the wine district of the south of France and the university being one of the most noted in all Europe. He has, besides, traveled extensively in Spain, Italy, and Portugal. His report is therefore of especial interest, as the author is competent to write authoritatively on the subject. The second report is by our agent at Cette.

Concerning Marseilles, the manufacture of cream of tartar has long ago been abandoned here. Mr. O. Gross, an American merchant of high standing and long resident in this community, says:

> The manufacture of cream of tartar was given up almost entirely here fifteen or twenty years ago—since the heavy duty of 10 cents per pound (tariff of 1877), afterwards reduced to 6 cents, was imposed—and transferred to the United States. The duty is prohibitive as long as crude argols remain on the free list.
>
> Crude argols are offered at present at about 1.25 francs per degree of bitartrate of potash in the 100 kilograms, which enables makers of cream of tartar to sell this article with a profit at 175 francs per 100 kilograms, say at 15½ cents per pound, the actual price over here, while makers on the other side continue to ask 20 cents per pound. American manufacturers consequently have had for the last fifteen or twenty years the profit of nearly the whole of the protective duty, and this exclusively to the prejudice of consumers of baking powder and to

the prejudice, also, of the wine-producing districts in the United States, which are obliged to sell their by-products—argols and lees—at low prices in order to be able to compete with European products, which enter free. The United States Government draws no benefit whatever from duty on either cream of tartar or tartaric acid, not a single kilogram of either of these articles having been imported since the new tariffs have been enforced. In former times small factories of cream of tartar were scattered all over the wine-producing districts of the south of France, but they have nearly all been closed, the principal outlet for cream of tartar—the United States—having been lost and the whole consumption in the United States having since been supplied by the five large works in New York, Jersey City, and Philadelphia, viz: Powers & Weightman, Philadelphia (tartaric acid); the Tartar Chemical Company, Jersey City (cream of tartar and tartaric acid); the Union Chemical Works, New York (cream of tartar and tartaric acid); the New York Tartar Company, New York (cream of tartar and tartaric acid); Charles Pfitzer & Co., New York (cream of tartar and tartaric acid).

These parties, and some others which may not be present to our mind, control the American market, and their long experience concerning the manufacture of cream of tartar and tartaric acid is such that they need no more help or advice from abroad.

The total exportation of argols (crude) and lees from this consulate to the United States for the year ended June 30, 1892, was $100,000.

CHARLES B. TRAIL,
Consul.

UNITED STATES CONSULATE,
Marseilles, August 25, 1892.

MR. ARTHUR P. HAYNES'S REPORT.

[Inclosure 1 in Consul Trail's report.]

MONTPELLIER, *August 10, 1892.*

In reply to your letter of the 6th, allow me to present the following extracts from my notes, which I think will be amply sufficient to enable you to answer the questions of the California State viticultural commission.

The most valuable by-product of vinification is the tartar that is deposited immediately after tumultuous fermentation ceases. The name "cream of tartar" is generally given to the acid tartrate of potash, or bitartrate of potash, which has the general formula $C_8H_5KO_{12}$. It is also acid, and its acidity has for an equivalent 188, corresponding to 75 of free tartaric acid or 49 of monohydrate sulphuric acid (SO_4H). It can also fix an equivalent of potash, giving neuter tartrate of potash ($C_8H_4K_2O_{12}$). It fixes, also, an equivalent of soda, giving a purgative salt (seignette)—$C_8H_4KNaO_{12} + 8\ HO$.

Bringing together saturated solutions of bitartrate of potash and sulphate of lime (plaster, gypsum, etc.), always keeping in suspension an excess of these salts, there will be formed, by double decomposition, free tartaric acid, sulphate of potash, and neuter tartrate of potash, or this last salt, bitartrate of potash, and acid sulphate of potash (bitartrate). This is one of the chief reactions that take place in "plastering" the vintage.

By calcination the bitartrate of potash carbonizes, disengaging a characteristic odor of scorched bread, afterwards leaving a residue of carbon and carbonate of potassium. This salt is only slightly soluble, especially in alcohol. It forms whenever tartaric acid is added to a potassium salt. It is due to this that in many wines which contain potash combined with other organic acids (malic, etc.), tartaric acid produces a precipitate of cream of tartar. Its solubility is very feeble, but is greater in water than in alcohol; it augments with the temperature, and is nul in alcohol at or above 90° proof.

Acids, such as malic acid, or the acid salts, as the bisulphate, always augment the solubility.

The ordinary bitartrate of potash of commerce comes from the purification of the impure tartrates and the lees that the *vigneron* collects after the vintage. In Europe these supply him with no contemptible revenues.

It is generally estimated that 100 kilograms of unfermented grapes contain about 900 grams of tartar, distributed as follows: The must, 80 liters, will dissolve, at a temperature of 20° C., 400 grams, *i. e.*, 5 grams per liter; the rest, about 400 or 500 grams, is in the form of crystals undissolved in the must or in suspension. By fermentation the must becomes alcoholic; and the bitartrate, becoming less soluble, partially separates, and whenever the temperature falls the separation becomes more abundant.

One hectoliter of wine of 10 per cent alcohol, at a temperature of 10° C., does not contain more than from 200 to 300 grams of tartar, while it contained double this amount before the must was fermented. This quantity diminishes with the alcoholicity of the wine. Other things equal, it augments with the acidity of the wine.

One of the most striking effects of the diseases of wine (such as "tourne," "pousse," etc.), is the complete disappearance of the tartar, it being transformed by the special ferments into lactic acid, butyric acid, carbonic acid, etc. In some cases these bacteria attack the crystals on the walls of the tanks or those that have fallen to the bottom with the lees. In this case the *vigneron* tells you that the wine has "eaten its lees."

If, after the first fermentation, the wine be drawn off while still warm, the salt in excess (*i. e.*, excess of 200 to 300 grams per hectoliter), there will be a much greater deposit on the staves of the casks into which it is run than would have taken place had the wine been allowed to assume the temperature of the surrounding air. In the case of wine resting a long time before the first drawing off the most important deposit of tartar is in the fermenting tank.

It is interesting here to note that the thickness of the crystalline deposit on the sides, bottom, and top of the barrel is always uniform.

The best and purest tartar is taken from the interior of the cask, while that which falls to the bottom, mixed with the lees, is of comparatively little value: First, because there is very little of it; second, because it costs more to extract it from the greater mass of impurities in which it gets mixed.

If the new wine is kept in cement or glass-lined tanks (very common in Italy, Spain, and part of Portugal), the incrustation of tartar on the walls is much less, while the quantity that mixes with the dregs is very much greater. I have seen cases where well-washed wooden sticks were suspended in the large tanks, in order to facilitate the deposit of pure tartar, thus avoiding the loss of price paid for lees.

It is, then, the wooden vessels that are best suited for the depositing of tartar. The barrel staves coming from Burgundy are the best for this purpose, as they are rougher and afford more points than those of Austria or America.

Some wine-growers go so far as to maintain that it is better to buy the inferior French oak, in spite of its tendency to crack. They think that the tartar deposit will at once fill up these fissures, and thus enable one to make great economies.

In the south of France (the most important center for the manufacture of cream of tartar, etc.), it is generally admitted that the amount of tartar taken from the interior of the tanks is from 200 to 300 grams for each hectoliter of capacity annually. This, at the rate of 1.20 francs per kilogram, largely pays the interest on the cooperage and is one of the many reasons that decide the southern wine-growers to abandon the old cement vats.

The harvest of tartar (*détartrage*) takes place yearly if the incrustation is sufficiently thick. It can be done at all times of the year. The only governing principle is convenience. So soon as the tanks are empty the *vigneron* notifies some one of the men who make this their profession. These are the middlemen. They buy it from the *vigneron*, attending to the work of detaching the crystals themselves. It is a very wise precaution, however, for the proprietor to watch the workmen, for sometimes they take off as much barrel stave as tartar.

The instrument used is a sharp adz. In commerce the crude tartar is known under various names—gravel, "crude red crystals of tartar," or "white," as the case may be.

This crude tartar, besides the bitartrate of potash, contains tartrate of lime and other impurities, such as silica, iron, etc., organic matters, such as coloring matter, etc. The tartar in plastered wines is much less rich in tartrate of potash than in nonplastered wine, while the tartrate of lime is much greater.

The richness of tartars varies from 40 to 80 per cent in pure salt of potash, and as a mean from 50 to 60 per cent. The tartrate of lime varies from 3 to 8 per cent.

Tartar of the alembic results from the distillation of the residues of the wine press. It is safe to say that this residue of stems, skins, etc., still contains 2 or 3 kilograms of tartar to each 100 kilograms of residue after pressing "pomace." If this pomace is directly distilled and the operation once finished, you let it macerate for several moments in boiling water to saturate the vinasse well. If this saturation is incomplete, you add more pomace and continue the maceration. You then draw off the hot solution and run it into barrels, etc., in which you have put shavings, sticks, etc. On cooling, the tartar deposits as in the other case. There is no fixed rule for this, each person having a plan of his own. In this way one can get from 100 kilograms of pomace 1 or 2 kilograms of tartar, which, at 2 francs per kilogram, represents a sum of from 2 to 4 francs per 100 kilograms of pomace.

Tartar of lees is extracted from the dregs after the first racking off. If they are dry, you saturate with boiling water, using a copper vessel containing 50 or 60 liters. The point of saturation is readily seen from a film which forms on the top.

In order to obtain colorless crystals—and more especially pure—from the crude tartar roughly collected, special establishments are necessary. The cost of a cream-of-tartar refinery capable of turning out 500 kilograms per day is about $20,000, and will furnish work for ten men all through the year. For extracting tartaric acid from the tartar the installation is far larger and more complicated.

To turn out 500 kilograms per day of tartaric acid requires an outlay of $100,000, and will keep twenty men busy. The two products are so closely allied that it is usual for every establishment to make both cream of tartar and tartaric acid. For such a combination one engine of 60-horse power will serve.

The refining of cream of tartar is a very simple affair, indeed, while the manufacture of tartaric acid is very complicated. The establishments differ very much, but the best seen in France, Italy, and Spain are somewhat after this fashion:

A large wooden tank, copper lined or not, as the case may be, is partly filled with water, into which the crude tartar or lees is thrown. Steam pipes bring this to boiling, and, when saturation is reached, the whole liquid is drawn off into tanks lined with lead, which hold 80 hectoliters. Here it is allowed to cool. To facilitate crystallization, slats are placed across the top. From these slats hang long strips of lead. When the liquid is thoroughly cool, the tank is emptied by means of a steam pump. As the liquid still contains a considerable quantity of tartar, this is put back into the boiler and resaturated. In other words, you keep on using the same water all the time. As this water keeps charging itself with organic impurities, it leaves in the bottom of the vats a deposit that smells very bad. The man who gets in the recently emptied cask or vat is always paid more than the rest. You can now have your cream of tartar in the form of dirty, reddish crystals the size of a pea—more or less. This must be dried in the sun in shallow trays with linen bottoms. Once dry, it is redissolved and recrystallized till the crystals are perfectly white.

In order to facilitate dissolution, in all cases the crystals are ground up under millstones into powder. The price of cream of tartar thus purified varies greatly from year to year, as is the case with tartaric acid. This year the price per 100 kilograms is: Cream of tartar, 200 francs; tartaric acid, 260 francs.

Considering the simplicity of the process of the one and the extreme complication of the other, it pays better to make cream of tartar than tartaric acid.

The important refineries are chiefly in the south of France, in the departments of Hérault Aude, Gard, etc., though wherever wine is made in any considerable quantity one finds refining establishments.

It is impossible to get any data concerning the history of the industry. It probably dates back to the earliest vintages. There are no systems other than that just roughly described, neither are there any patents taken out.

The chief market for cream of tartar is England, after which come the colonies. France uses very little cream of tartar, and the heavy tax of 6 cents per pound on the refined product compels the United States to bring over the crude tartar with all the impurities in it and wash them off when it arrives. I suppose the freight on impurities is not much.

The value of crude tartar depends, of course, on the percentage of pure salt it contains. There are two methods for hasty tests, either of which is sufficiently accurate. Besides these, there are a number of thumb-and-screw rules of greater or less precision:

(1) From a sample of at least 1 kilogram of finely powdered tartar take 50 grams carefully weighed on a balance exact to a decigram. Boil this in 1.25 liters of water; boil for ten minutes; repose three minutes, and by decantation into another vessel you separate the liquid from the impurities. This requires practice, however. After standing six hours in a cool place you wash the crystals formed in a half liter of water divided into three parts—three separate washings. Dry at a temperature of 100° C.; weigh, and calculate as follows: Say 20 grams of tartar obtained from 50 grams of sample; for 100 you have $20 \times 2 = 40$; you add to this the tartar carried off in the mother liquid = 10 grams for each test; finally, you have $20 \times 2 + 10 = 50$ per cent. This process is widely employed, but gives 2 to 3 per cent too little.

(2) Dissolve 1 or 2 grams of crude tartar in 250 cubic centimeters of water; then, with 10 or 20 cubic centimeters of this, you determine the acidity with limewater of known strength. It is then easy to calculate the quantity of acid tartrate of potash corresponding to the limewater employed.

If France sends most all of her cream of tartar to England for baking powder, etc., she uses great quantities of tartaric acid at home. Especially since plastering wine has fallen into disfavor and tartaric acid has been in a measure substituted, the manufacture has greatly increased. It is manufactured chiefly in the south of France, but there are important factories elsewhere—Lyons, etc.

Tartaric acid, with malic acid, citric acid, and oxalic acid, are the most widely diffused in the vegetable kingdom, especially in green or unripe fruits, where it is met with either in a free state or half saturated by such bases as potash, lime, etc., forming bitartrate of potash, neuter tartrate of lime, etc. It is very abundant in unripe grapes. Thus the aramon, while still green and hard, contains 23 grams of sugar per liter of juice and 10.7 grams of tartaric acid, of which 8.9 grams are free and 2.3 grams bitartrate. At maturity 1 liter of the must made from the same variety contained 114 grams of sugar and 7.6 grams of tartaric acid, of which 2 grams were free and 7 grams in the state of bitartrate of potash. Little by little the free acid diminishes, and at complete maturity it has entirely disappeared.

Tartaric acid was isolated from bitartrate by Scheele in 1769. Later the experiments of Pasteur indicated the existence of four distinct acids.

It is extracted from the lees of wine, the residue from the purification of cream of tartar, sandy deposits, crystals, etc., which contain tartrate of lime and bitartrate of potash. It should be remembered that whenever the raw material contains more than 10 per cent of tartar it is used for cream of tartar, and all less than 10 per cent strength is set aside for tartaric acid. In the south they do not consider that it pays to use crude tartar for the cream, unless it contains more than 10 per cent of pure salt.

On receiving your letter I visited a very fine factory at Montpellier, and, as it is fresh in my mind, I will break away from notes and describe it.

In an immense room one finds piles of crude material all carefully separated according to their value, already determined in the laboratory (every establishment has its chemist).

The cakes of dregs from the racking off, the lumps of disgusting-looking sediment taken from the crystallizing tank in the cream-of-tartar department, and the fine, large crystals fresh from the country—all meet the eye in endless mounds.

The raw material, whatever be its source, is ground up under a huge millstone and is at once thrown into a large tank of hot water, and, once dissolved, is attacked with chlorhydric acid to dissolve the tartrates and enable their separation from insoluble residues. Right here I must go back to my notebook to observe that if, instead of using hydrochloric acid to attack the crude tartar, you use sulphuric acid, by evaporation of the mother liquid after the deposit of the tartrate of lime a very valuable fertilizer, rich in sulphate of potash, is obtained. This is not always done, however, as other chemical fertilizers of more richness can be had very readily in the south.

After separating the liquid from the impurities, coloring matter, etc., by decantation and filtration, it is neutralized by adding carbonate of lime. This is done in a huge tank, in the middle of which is an immense affair for mixing, like a huge churn worked by steam. The lime causes all the tartaric acid to precipitate in the form of neuter tartrate of lime. This salt is collected and washed, bone black being used for the purpose of decolorizing and the ordinary filter press for clarification. It is then decomposed with sulphuric acid into the very feebly soluble sulphate of lime and free tartaric acid, which is separated from the lime sulphate by filtration.

The remaining acid liquid must be evaporated, and just here is the only part of the process where a modification has ever been made. Formerly mere open vats were used, but now evaporation is done in vacuum pans—a great improvement. When it comes from the evaporating machine, it is a most disgusting-looking yellow ooze, but it is pure acid with a little water. To operate this, the workmen scoop it up into copper buckets and empty it into a centrifugal machine that holds about a hectoliter. Here it is thoroughly dried. The machine makes "one thousand revolutions to the second [minute?]," the director told me. Whether this is mathematically correct I can not say—only in a minute the yellow ooze is beautifully white powder. There are a dozen of these centrifugal machines constantly at work. The water thus separated is carefully kept and put back for resaturation.

There now remains but one step before the acid is ready for the packing room. The powder must be dissolved and crystallized, an operation that has been already described in the making of cream of tartar.

Tartaric acid is largely used for tinting clothes, in pharmacy, and recently it has begun to replace plaster in the warmer climates. It certainly does in a measure replace it and has none of the drawbacks of plastering. It brightens the color, which is very unstable in some wines, such as wine made from the Jacquez (Lenoir). The doses to employ vary greatly, depending upon an analysis of the wine. As a rule, the *vigneron* experiments beforehand with different quantities. After six or seven days he studies the effect on the color, limpidity, taste, etc. As a rule, 1 gram per liter produces a very noticeable improvement. The addition of tartaric acid to wine causes the precipitation of the bitartrate, which brings about the displacement of the potash combined with malic acid, for example.

In this case the augmentation of the acidity is about the half or two-thirds of the tartaric acid employed, but is due not to tartaric acid (which becomes insoluble in the state of bitartrate), but to the malic acid set free. It is worth remarking that the bitartrate thus precipitated pays half the expense of acidifying with tartaric acid.

The annual product of France in 1888 was near 100,000 kilograms of tartaric acid. It is far greater to-day, but want of data compels me to go back to 1888.

Thus you see that if it pays to make cream of tartar, it pays almost as well to make tartaric acid, from the fact that in the latter industry the smallest percentage of bitartrate can be utilized, while in the former the raw material must have a minimum value of 10 per cent. It really pays and pays well, on account of the cheapness of the material used.

It is a curious fact that when crude tartar is bought the manufacturer pays higher prices for large quantities than for small quantities, other things being equal.

In spite of the strong, unpleasant smell in the crystallizing vats, the workmen never seem to suffer; in fact, they are healthier than the average laborer. I questioned the men, as well as the proprietors of the many factories I visited in Europe, and all agree as to the healthfulness of the work.

The other by-products of the vintage are: (1) Sugar wine made from the pomace; (2) piquette, made from the pomace after the sugar wine is made; (3) use of pomace for food for cattle, seeds as food for chickens and horses, instead of barley; (4) tannin from the seeds.

Sugar wine, or *Vin de 2^{me} Cuvée*, is extensively made in Burgundy. Champagne acid results as a rule when the wine is of a superior quality. It was especially important just after the phylloxera began its ravages. It is very profitable if the pomace has already made fine wine. It would require a small volume to treat the subject properly, and, as no special stress seems to be laid on the subject, I shall postpone treating the subject till some one wants it.

Piquette is only profitable in countries like France, where wine is almost as important in the nourishment of the workmen as bread and meat.

The use of the pomace as food for cattle is very general, and is to be recommended when plaster has not been used. Comparative tests at the National School of Agriculture prove that it is as nourishing as hay, and, when mixed in equal parts with hay, furnishes a very good food for horses and cows.

It is quite common to see chickens fattened on grape seeds, but only once have I seen the dry pomace carefully sifted for seeds to be fed to horses. This was in Spain, at Jeres de la Frontera, at the immense vineyards of Gonzales, Byass & Co. Mr. Gonzales told me that the nourishing power of seeds was, according to analyses he had specially made in England, the same as ground barley. But I must add that if plaster has been used during fermentation six weeks of this diet will kill four out of five of the animals.

The tannin made from the seeds is too insignificant to be dwelt upon.

The use of the pomace for fertilizing is too well known to be described.

I hope these rough extracts from my notebook will enable you to answer the questions put to you by the State viticultural commission and prove of use to someone. Should you ever desire information on viticultural or agricultural subjects, I hope you will command me. Letters addressed to my home in Santa Barbara, Cal., will always reach me, though I shall be two years more studying in Europe.

And I assure you it gives me great pleasure to be of service to the State I am proud to call my home.

With kindest regards, etc.,

ARTHUR P. HAYNES.

CONSULAR AGENT NAMENS'S REPORT.

[Inclosure 2 in Consul Trail's report.]

The manufacture of cream of tartar took its rise at Montpellier, in Hérault, and gradually spread into the departments of Aude, Gard, and Rhône, as well as in the district round Bordeaux; later on, also, in Spain and Italy, principally in the wine-growing districts; and, lastly, in Germany.

This product can be manufactured all the year round, and the quantity turned out, though very considerable, is hard to determine even approximately.

Various processes have to be resorted to in the manufacture of cream of tartar, such as boilings, either by fire or superheated steam, and coolings down, either in boilers or crystallizers, these latter being either of wood or copper.

The business house of P. Verniere created this industry at Montpellier rather more than a century ago, and the village of S. Thiberg, in Hérault, is almost exclusively devoted to its production. The following are the principal manufacturers: Coulandre & Vidal, Anselme

Vidal, Vidal, sr., Vidal, jr., and Béleman. At Aubais, in the department of Gard, there are two important houses—Santel *fils*, and Gouirand. In the department of Aude: Gibert & Calas, at Quarante; C. Dijaux, at Lézignan; and Déjean, at Salelles d'Aude. In the Rhône, Mme. Vve. Targe.

No patents have been taken out. Improvements have been made, but the industry has always been free. The plant in the factories consists simply of boilers placed over furnaces. No other system exists in France. Since the phylloxera appeared the manufacture of cream of tartar has sensibly declined, but now shows unmistakable signs of looking up again.

The cost of manufacture is about 25 francs for the two crystallizations, in the first place of the crystals and afterwards of the cream of tartar.

L. S. NAMENS,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Cette, August 15, 1892.

RHEIMS.

REPORT BY CONSUL ANGIER.

Although this is a great grape-growing district, there are not many persons engaged in the manufacture of cream of tartar from grape pomace or lees, only two firms in this city being engaged in this business, and these on a small scale only. These two firms are Charles Clignet *fils*, No. 5 Rue du Trésor, and V. Ducancel, No. 45 Rue de Thillois.

The business is usually carried on in the winter months, shortly after the grape pressings, which are usually made between the 1st and 15th of October.

So far as I have been able to learn no patents have been issued or granted in connection with carrying on this business, the business being done in the old-fashioned and primitive manner.

There is a very large work of several volumes (I am informed the price is 120 francs), entitled "Dictionnaire de Chimie," compiled by Ad. Wurtz, which gives much information on this industry. This book, printed in French only, can be had from almost any bookseller in Paris. Its information on this industry covers about forty pages. I have had translated and give below in English extracts from this book covering many points of interest on the subject, to wit:

The juice of the grape contains large quantities of bitartrate of potassium, or cream of tartar, mixed with tartrate of calcium and tartaric ethers. When the juice of the grape has made its fermentation and the alcohol has been produced, the cream of tartar, which is less soluble in alcoholic liquors, precipitates itself into a deposit, which adheres strongly to the staves of the barrel. That deposit is composed essentially of cream of tartar, mixed with tartrate of calcium and with dyeing materials, which can be removed.

That deposit, the thickness of which increases every year until it is taken out of the barrels, is called "brut tartar."

Another precipitate, more voluminous and more ladened with pectic material and with tannin, forms itself in the must, and is called lees. The lees also contain cream of tartar, but in quantities less important than the brut tartar. Tartar is found under three different forms: (1) Red or white tartar, as either may be extracted from barrels which contained red or white wine; (2) the crystals of the alembics used in the manufacture of brandy, said crystals being picked up in the bottom of the alembics used for distillation; (3) the crystals of the lees obtained by crystallizing the liquids resulting from the treatment of the lees by hot water.

These products are different, as the crystals of lees and of alembics are richer in cream of tartar; whereas the tartar of the barrels, being less rich, often contains large quantities of tartrate of calcium. The crystals of lees are free from it, and those of alembics generally contain but a small quantity of tartrate of calcium.

Independently of the differences existing in the composition of the tartars, which differences are due to the nature of the wines which have produced them, there are still others which can be caused by chemical decomposition provoked in the must by the "plastering" operation of the wine. The plastering is made by pressing plaster with the grapes, and that process is nearly universal in Spain; common in the islands of Greece; at Marsala, in Sicily; and in the south of France. But in the other parts of Sicily and in many parts of France the plastering operation is not practiced.

When the wines have been "plastered," the quantity of cream of tartar is considerably lowered; it forms then more tartrate of calcium, and in this case the lees contain too little of cream of tartar to repay the expenses of extraction.

The largest quantity of cream of tartar is found in the brut tartar, the proportion of cream of tartar therein being greater than any other ingredients.

The ancients knew of the existence of tartar in the wine deposits. That deposit of the wine was not called by any particular name; it was designated "waste of the wine" or "leaven," and by the expression "fœx vini" among the Romans.

To purify the tartar, they crystallize it several times, one after the other, in hot water, and they eliminate the last particles of calcium which are retained very strongly in it. For that operation they mix twelve parts of tartar with one part of muriatic acid and six parts of water. They submit this mixture to a temperature of 68° to 77° F., and after twenty-four hours they let drip the crystals; and they wash them with cold water and they then crystallize them in hot water for the last time.

Cream of tartar is also formed each time that they add tartaric acid to a solution of salt of potassium; the cream of tartar forms opaque crystals—translucent only when they contain no trace of calcium.

ALTON ANGIER,
Consul.

UNITED STATES CONSULATE,
Rheims, August 10, 1892.

GERMANY.

COLOGNE.

REPORT BY CONSUL WAMER.

Cream of tartar, tartaric acid, and tartar emetic are manufactured in very large quantities in Germany. There is no special season for carrying on the manufacture, which may be done equally as well during the whole year.

A pretty good description of the process of manufacture may be found in "Muspratt's technische Chemie bearbeitet von Stomann & Kere." There is, however, very little published on the manufacture of these articles. The manufacture can be profitably done only on a large scale.

The apparatus are very simple, consisting of immense wooden tanks, large copper kettles, and copper tanks for crystallizing the cream of tartar;

large, lead-lined wooden boxes for evaporating and crystallizing the tartaric acid; a couple of centrifugal machines, and some buhrstones for grinding the argols. A few patents only have been taken out, and refer mostly to apparatus. The process is a very simple and old one, yet there are, I am informed, quite a number of secrets connected with it.

The following addresses have been furnished me as the most important manufacturers in Germany: Albert Boehringer, at Nieder-Engelheim; M. B. Vogel, at Leipsic-Lindenau; Carl Otto Finckh, at Stuttgart; Goldenberg, Geromont & Co., at Winkel (Rhinegau).

The most practical way of ascertaining what has been done in the way of improvements and inventions that may have been patented is through patent agents, and I give below the addresses of a few of such persons in Germany, namely: Brockhues & Cie, at Cologne; Capitaine & von Hertling, at Berlin; Patent-technisches & Verwaltungs-Büreau, Betche, at Berlin.

WM. D. WAMER,
Consul.

UNITED STATES CONSULATE,
Cologne, December 2, 1892.

KEHL.

REPORT BY VICE-CONSUL HANSMANN.

In Alsace, which is the most important wine-growing district in Germany, the various chambers of commerce report that there is no established industry for the utilization of pomace and lees, but that all these by-products are made use of in some way or another.

The well-to-do wine growers do not remove the argols deposited in the barrels, and state that the wine, when it grows older, reabsorbs these deposits and is thereby improved in quality. Poorer wine-growers sell the argols to the druggists, who refine them and remove the lime by dissolving in water, heating to the boiling point, mixing about 10 per cent of muriatic acid, and then cooling and crystallizing under constant stirring. The tartar thus obtained is used in dyeing.

The lees are generally distilled and yield a brandy much liked for home use. The residue is then heated to boiling, strained through linen, mixed with common salt, and cooled by constant stirring. The argols thus obtained are likewise sold to the druggists.

The pomace is generally pressed out a second time with water, and the "wine" thus obtained is the ordinary drink taken out in the field by the workman; it has no commercial value. The thick pomace remaining after the second pressing is often pressed into cakes, which are dried in the sun and used for fuel, giving a slow, steady fire, much like peat.

Many wine-growers sell the lees and the pomace to wine-manipulators, who add certain chemicals and make a kind of inferior table wine from these products.

In Baden the wine-growers put the by-products to about the same use. There is, however, an extensive factory that extracts various substances from the lees and pomace with much success. To my written request for information, this firm replied that it could give no information concerning its processes, they being the outgrowth of long and expensive experiments, and hence business secrets. The manufacturers, however, expressed their willingness to enter into direct correspondence with parties in America interested in the subject. I have no doubt that the California State board of viticultural commissioners could obtain very valuable information from the firm in question by paying a reasonable compensation for it. I therefore add the address, viz, Chemische-Fabrik, Staehl & Hassler, Riegel, Baden, Germany.

CARL A. HANSMANN,
Vice-Consul.

UNITED STATES CONSULATE,
Kehl, July 27, 1892.

MANNHEIM.

REPORT BY CONSUL WINTER.

The manufacture of cream of tartar, or bitartrate of potassium, from grape pomace and from lees, is not extensively engaged in in this consular district. The wine-makers in Rhenish Bavaria are utilizing their by-products to some considerable extent in the manufacture of tartaric acid, and also cream of tartar; but all these manufacturers refuse to give any valuable information as to the *modus operandi* by which this product is produced from the grape pomace.

Cream of tartar is produced from either what in the trade is called green lees of wine, or from dry and very hard lees that come from Spain, Italy, south of France, and tropical countries, or else from the inland raw tartar or imported raw tartar, called "tartar brut."

Cream of tartar in crystal form is extensively used in chemical dye and color factories in the production of fine colors.

There is no particular history as to the development of the industry in this country, and more attention is given to the manufacture of tartaric acid in Rhenish Bavaria, as I am informed, for the reason that the old process in use here is not only complicated, but expensive, and the manufacturers find it difficult to compete with French and Italian manufacturers of cream of tartar.

Boehringer & Sons, at Waldhof, on the Rhine, Goldenberg, and Beukeiser are the leading manufacturers of tartaric acid, and also manufacture cream of tartar.

S. Kaufmann, of Neustadt, Rhenish Bavaria, together with his son, claims to have a new and cheaper process of manufacturing cream of tartar from grape pomace and from lees, and about all the implements necessary are steam boilers, a number of wooden tubs, and a few filtering processes, together with certain chemicals, producing fine crystals of cream of tartar. And it might result in advantage to the wine-makers of California to place themselves in correspondence with Mr. Kaufmann in regard to his new process of manufacturing cream of tartar.

Patents are not usually taken out by manufacturers of cream of tartar, for the reason that very slight alterations in the processes might upset the value of the patent.

Through the chambers of commerce of Mannheim and Ludwigshafen, I am reliably informed that there are no public prints or journals or scientific publications treating upon the process or processes of the manufacture of cream of tartar. I would suggest that the California State viticultural commissioners would do well to delegate one of their number to visit Europe with a view to learning the best methods of manufacturing cream of tartar from grape pomace, and, should such agent visit Mannheim, it will afford me the greatest pleasure in facilitating the object of his visit.

JNO. F. WINTER,
Consul.

UNITED STATES CONSULATE,
Mannheim, September 5, 1892.

ITALY.

REPORT BY CONSUL LONG, OF FLORENCE.

Regarding the manufacture and shipment of cream of tartar in this consular district, I have to report as follows:

(1) The commerce of rough tartar has but comparatively small development in the province of Florence. The industry of manufacturing cream of tartar or refining from the crude or rough material is likewise of a very limited character.

(2) In this district there are several chemists who gather on their own property small quantities of raw tartar and refine the same every year. Only one establishment for the preparation of cream of tartar in this immediate district is possibly worthy of mention, and that is situated at Carpi, near Modena, and is the property of Signor Tomaso Benassi. The largest production of cream of tartar is probably found in the meridional provinces of Italy, owing to the large extent of wines produced in these districts and to the large quantity of acids and salts contained in such wines, which are generally of great strength. At San Antimo, in the province of Naples, almost the entire population is occupied in various ways in the traffic of tartar and the manufacture of cream of tartar. The following places in the meridional provinces comprise those which do the most extensive business in this article: Pozzuoli, in the province of Naples; Castellana, Casamassima, Conversano, Noci, and Bitonto, in the province of Bari; Vasto and Lanciano, in the

province of Chieti; Giulianova, province of Teramo; and Monte Urano, province of Ascoli Piceno. In Sicily the commerce of tartar and the manufacture of cream of tartar are rather flourishing and noteworthy in the following places: Barcelona, Pozzo di Gotto, and Molfetta, in the province of Messina; Trecastague and Giarre, in the province of Catania; and Vittoria, in the province of Siracusa. In central and northern Italy tartar-refining establishments are to be found at Lodi, province of Milan; San Pier d'Arena, province of Genoa; Venice; and Vado, province of Sarona. Rough tartar and cream of tartar are principally exported from the following ports: Ancona, Bari, Genoa, Naples, Syracuse, Palermo, Termini, and Leghorn.

(3) The processes employed in Italy by the refiners of tartar in the manufacture of cream of tartar are different, but all are based on the simple condition of the solubility of tartar in boiling water and its almost insolubility in cold water. No chemical reaction is necessary for the purification of tartar. Both white and red wines equally produce tartar, which is naturally deposited on the internal sides of the barrels in crust formation of whitish, yellowish, or redish hue, according to the color of the wine or fruit from which it is produced. These crusts are more or less hard, heavy, and compact; their size and intensity depend upon the age of the wine (the oldest being the best) and upon the number of years the wines have remained in the casks. The more common process used by the Italian refiners to obtain the cream of tartar is as follows: Rough tartar is taken and pulverized; after this it is placed in large copper boilers and dissolved in boiling water, and the quantity of water is three times the weight of the tartar. The boiling must continue one or two hours, or until the substance is entirely dissolved. In order to free the tartar so dissolved from coloring matter, they precipitate it into some argillaceous clay; in this manner the colored matter is separated. To obtain a complete purification and a clear white hue, animal charcoal is utilized, and, finally, the solution is filtered, while still boiling, into large wooden tubs, when the refined tartar or cream of tartar crystallizes. By renewing, if necessary, the process just mentioned they obtain a product more clarified and perfect either for commercial or medicinal use or for a mordant in the dyeing industry.

(4) Crude tartar has been known for many centuries, but it was only during the eighteenth century that chemists began to purify it. Scheele discovered the chemical formula of its composition in 1769.

(5) No patents have been granted to inventors.

(6) The tartar industry in Italy generally is quite unpretentious, and there are few establishments which might in any way be termed important

JAMES VERNER LONG,
Consul.

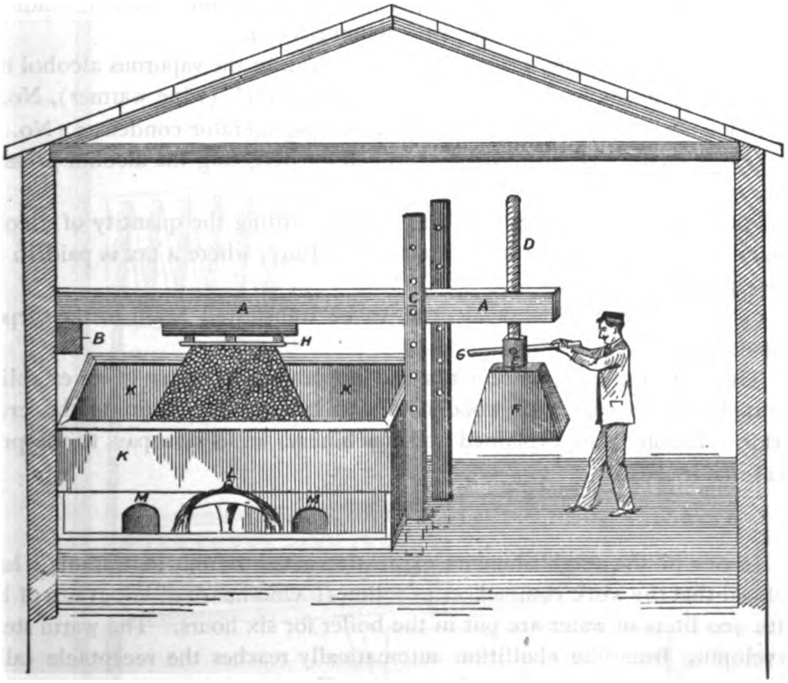
UNITED STATES CONSULATE,
Florence, October 13, 1892.

CATANIA.

REPORT BY ACTING CONSUL PERATONER.

Wine-making has been, since ancient times, a feast time in Italy. The way employed to obtain that nectar was for a long period of time very imperfect and primitive, and following is a brief description:

Grapes being gathered, they are transferred into the wine press, where, according to the quantity, they are crushed by men furnished with rough shoes. This operation done, all the juice is allowed to run out from the hole in the wine press into the underlying large tubs, and the remaining lees are spread in large upper tubs. The must obtained from the previous crushing is poured on them and left standing for twenty-four or forty-eight hours, in order to give the mass the necessary time to ferment and cause the lees to come up. After this operation is done, the wine is again allowed to run into the under tubs to measure it, whence it is transferred to the casks, which are left open until the boiling fermentation stops; they are then hermetically closed.



OLD-FASHIONED SICILIAN WINE PRESS.

A. Press tree.
B. Support of lava.
C. Support ladder.
D. Wooden screw.
E. Head of screw.
F. Weight stone.

G. Screw handle.
H. Press wooden plates.
I. Husks and lees of grapes.
K. Upper receiver (masonry).
L. Issuer of wine must.
M. Under receiver.

The lees left in the wine press are placed in a pile and covered with a matting of round shape made of thin rods. The lees are thus pressed three times, for this paste contains all the coloring matter, which is then added to the wine in the casks.

Nowadays, however, science has not only reached the highest degree of perfection in preparing and keeping wines, but also in utilizing all the refuse, which previously was burnt in the open air, in order to obtain a sort of ash, which was sold to soap-makers. In fact, in the present epoch all wine lees constitute a real national wealth, for through them two very important products are derived—alcohol and cream of tartar, the latter directly, without using crude tartar.

The process employed to obtain these two products is rather easy, and the following machinery is necessary to start an establishment:

(1) A boiler to be filled with lees and in which at the same time a regular quantity of water is to be poured in the proportion of four times the weight of the lees to be boiled and worked.

(2) A chamber for receiving the steam or vaporous alcohol coming out from the boiler.

(3) A pipe which, from the upper part of the steam chamber, leads the vaporous alcohol into the serpentine column No. 4.

(5) A pipe from the serpentine column leading the vaporous alcohol into a closer receptacle, usually called here "scaldavino" (wine warmer), No. 6.

(7) Another pipe ending in the rectifier-refrigerator-condenser (No. 8).

(9) A small brass box with a glass bell for detecting the alcohol pressure (No. 10).

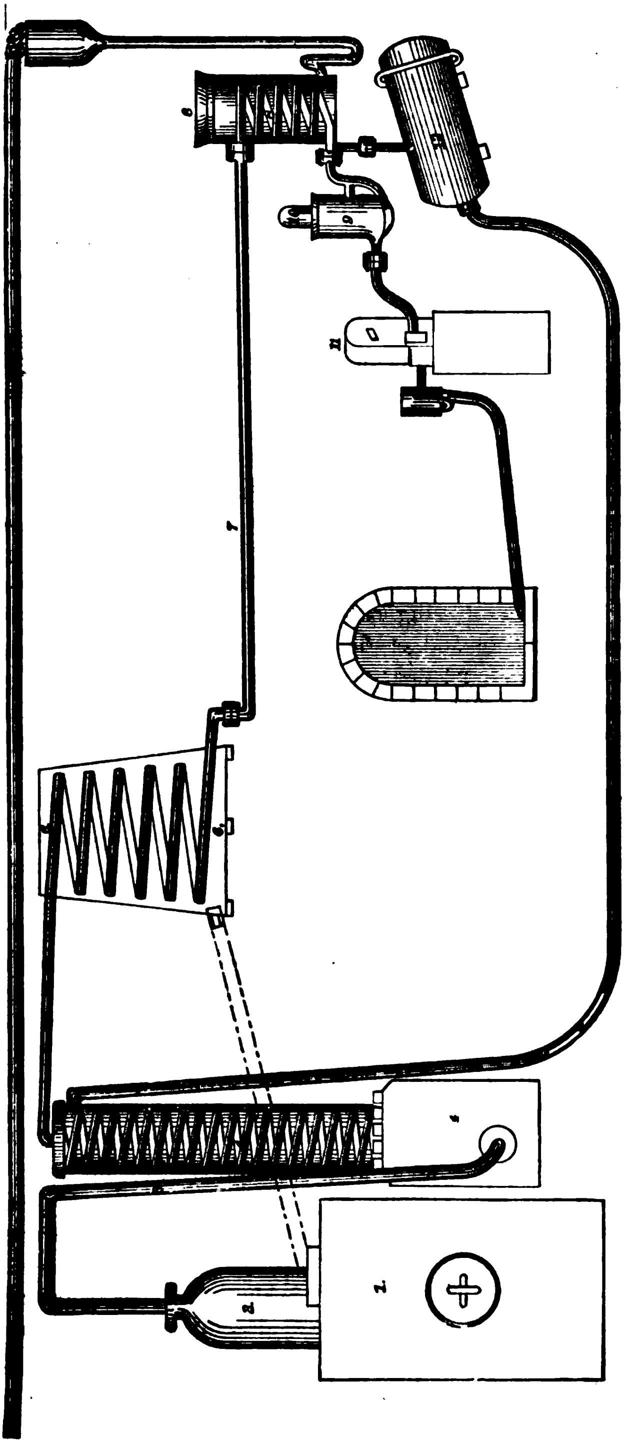
(11) An apparatus for measuring and recording the quantity of alcohol produced. (This device is compulsory in Italy, where a tax is paid to the Government.)

(12) A receiver of weak alcohol, to be transferred again to the serpentine column No. 4.

These are the sole instruments and apparatus necessary in an establishment, besides a supply of wooden tubs to be used in obtaining the crude tartar. Having thus explained the machinery, let us now pass to the practical manipulation.

ALCOHOL.

In one of the establishments expressly visited by me in Catania I have noticed that the work commences as follows: One hundred kilograms of lees with 400 liters of water are put in the boiler for six hours. The warm steam developing from the ebullition automatically reaches the receptacle called "scaldavino" and then the refrigerator. The steam, so turned into alcohol, becomes semicool in the former and quite cool in the latter. The water remaining in the boiler, together with the boiled wine lees, are not to be thrown away, but poured in the wooden tubs. Another operation begins, constituting the real answer to the questions put by the Department circular.



APPARATUS FOR MAKING CREAM OF TARTAR AND ALCOHOL.

CREAM OF TARTAR.

The wooden tubs are first filled with full-grown and dry asparagus, bound in large bundles. The warm water and lees remaining in the boiler are poured on them, letting the mass rest undisturbed for at least four hours, during which, becoming cool, the cream of tartar will be deposited on the asparagus stalks. It is then time to take them out and place them in empty tubs, allowing the necessary time to dry. This obtained, the raw cream of tartar is removed from the stalks (to which it adheres) by an undulatory movement of the hand from left to right. The cream of tartar, being so gathered, is put to dry, as manufacturers in this country usually sell their product in a crude state.

The water remaining in the tubs possibly contains uncrystallized sediments, and can be put to boil again, together with a fresh supply of lees.

Cream of tartar is obtained in earthen pots by purification of crude tartar, either gray-white or red colored, deposited in the interior of the wooden casks in which wine is kept by the following process:

Raw bitartrate will first be reduced in powder, and in such a state is mixed with 4 or 5 per cent of clay earth. By boiling both together, and with the coloring matters of its salt, a certain kind of insoluble lac is formed. Care should be taken in using clay containing no lime. The mass must then be allowed to cool and crystallize, bearing in mind that one or two more crystallizations are necessary if a perfectly white salt is desired. This product is white, without smell, of acid taste, cracks under the teeth, and is unalterable in contact with air; is soluble in 250 parts of cold water and 15 parts of boiling water; it is insoluble in alcohol.

Kali tartaricum is white, of bitter and disagreeable taste, and is soluble in its own weight of cold water. It is obtained by putting some cream of tartar in boiling water and saturating through carbonate of potash; then filtered and evaporated.

To discover if cream of tartar contains any tartrate of lime the chemist Duflos put it in a flannel arranged in a porcelain funnel and plunged this apparatus in a solution of tepid carbonate salt, which dissolves only the tartrate of potash. Mr. Weng employs only one-twentieth of cream of tartar more than necessary to secure the carbonate of salt.

I now answer the questions put by the Department in the circular.

(1) The manufacture of cream of tartar is in the hands of only five firms.

(2) It is carried on as soon as grapes are pressed, usually from September on flat land and from October on the mountain. Cream of tartar ordinarily is extracted from the wine lees at the commencement of the vintage up to the beginning of May.

(3) Only one process of manufacture is known here, as before described.

(4) This industry is in a good state of development. To have an idea of its importance, I may add that in 1890 the value of alcohol exported from Catania was 143,002.35 lire, and that of tartar 145,161 lire.

(5) No patents have been granted.

(6) At first cream-of-tartar making in this district began in small proportions, and after good results were obtained a few enterprising firms took this industry entirely into their hands. They are now wealthy houses, needing no aid from banks and being able to handle the industry by themselves.

AUGUSTUS PERATONER,
Acting Consul.

UNITED STATES CONSULATE,
Catania, August 11, 1892.

LEGHORN.

REPORT BY CONSUL FORD.

Cream of tartar is not manufactured to any extent in this district, and there are no exportations of it. There is quite a business done in argols, about $40,000 worth being shipped from this port to the United States annually. The grape pomace left after extraction of the juice has no part in the argol of commerce, its only use being as a fertilizer. The wine upon its extraction from the grape is placed in large vats or upright casks, often holding 100 barrels, made of chestnut wood.

Argol is the acidulous salt which exists in wine or the juice of grapes, and is thrown off by the process of fermentation. As the process of fermentation goes on this salt is thrown off and adheres to the sides and bottom of the vat, a peculiarity being its insolubility in alcohol. It gradually hardens until the time the wine is drawn off, which may be several months or years, when, upon a short exposure to the air, it becomes nearly like stone. Without removing this coating, the vats are often refilled several times, allowing the argols to increase in quantity until they have reached the desired thickness for commerce—1 to 1½ inches. When dry they pry and scrape them from the vat, sometimes taking along particles of wood, it adheres so closely. The wine-maker then has his argols ready for sale to the agent of some merchant who is sent out through the country for that purpose. Upon receipt the merchant grades them by testing a small quantity from each lot purchased. The test is supposed to show about 50 per cent of cream of tartar for a No. 1 argol of commerce. Having been graded, the argols are ready for sale and exportation. They are either red or nearly white in color, according to the color of the grape from which they are made, the white being the best.

From what I can learn, there is no other process for the production of the argol than the foregoing, and its production is not confined to any large concern, but all owners of vineyards produce more or less. The buying of argols in this district is confined principally to one concern—Arthur Oubmann & Co., of this city.

RADCLIFFE H. FORD,
Consul.

UNITED STATES CONSULATE,
Leghorn, August 30, 1892.

SPAIN.

CADIZ.

REPORT BY CONSUL TURNER.

Wine lees and grape pomace were, until a decade ago, considered as waste by the wine-producers of this region. At present, however, they are sending these products to France.

There are no manufactories of cream of tartar in this district. One was started at Seville, but failed to pay, and was shut up.

R. W. TURNER,
Consul.

UNITED STATES CONSULATE,
Cadiz, August 20, 1892.

JERES DE LA FRONTERA.

REPORT BY CONSULAR AGENT HALL.

Cream of tartar is not manufactured in Jeres de la Frontera.

The lees or residue of must was a little over a decade ago considered as useless, and under such consideration was thrown away.

French merchants at the period above stated commenced to procure the lees, and through the ignorance of the Jeres wine-growers as to its use or value it sold for an insignificant price. At the present time all lees produced are collected and sold, as formerly, to French buyers, and also to Cadiz and Seville, for export. Prices range from 2 to 3 pesetas per arrobe.

No procedure other than that of drying the lees is observed here.

J. AUGUSTO HALL,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Jeres de la Frontera, July 23, 1892.

MALAGA.

REPORT BY CONSUL NEWSON.

In regard to the manufacture of cream of tartar in this consular district, I would say that there is one small manufactory of the article in this section; but the tartar is produced in the old-fashioned way, by boiling. There is no machinery used, and the establishment is hardly worthy of mention. Nearly all the cream of tartar is imported from England, Germany, and France.

T. M. NEWSON,
Consul.

UNITED STATES CONSULATE,
Malaga, July 26, 1892.

PORT ST. MARY'S.

REPORT BY CONSULAR AGENT DANIELS.

In reply to circular from the Department relative to the manufacture of cream of tartar from grape pomace and from wine lees, I have to report that in this wine-producing district there is no industry carried on in these products. The practice here is always, after the vintage season and grape-pressing is over, to give the pomace to pigs and poultry or dry it in the sun for use as fuel in winter. Occasionally, however, it is placed in tanks or small casks and water added, in order to make vinegar for use of the vineyard laborers.

Lees from the stored casks after the musts have been drawn off, as also those from the wine cellars after the wines have been fined and shipped, are pressed and dried in the sun. Afterwards the dried article is put up in sacks of 100 pounds weight and exported to France, principally, I believe, to Marseilles.

The price until quite lately has been, I am informed, about $4 per sack delivered free on board steamer in Cadiz Bay, but now the highest price offered from France is $3 per sack. There is, I am informed, a considerable amount of consigned stock in Marseilles waiting for better prices.

I only know of two persons in this town who are engaged in this export business, and only on a small scale.

I regret my inability to give any valuable information, but have no doubt that such may be obtained from the consular officers in France, where there is more enterprise and manufacturing industry, for want of which much money is here yearly thrown away.

GEO. M. DANIELS,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Port St. Mary's, July 15, 1892.

SEVILLE.

REPORT BY CONSULAR AGENT SCHMIDT.

One cream-of-tartar factory was commenced here some six years ago, but was given up after sinking $10,000. There are few factories in Andalusia. There are three in Malaga, which began on a small scale, and probably continue so.

Processes employed by them are doubtless primitive. As there is no factory in my district, I can not get any information in regard to processes.

The name of the party here who began the factory which was given up is Herr Adolph Ullrich, who brought out machinery from Germany, and also a chemist or engineer, but after experimenting he discontinued.

I could not get any information in regard to new patents or inventions. Things here are generally on a small scale and the processes primitive where they exist. Large industries with a view to export are failures.

I have some information that cream-of-tartar manufacture is paying less yearly, because this article is always getting cheaper. Meanwhile the other substances, such as acids, cognac oils, etc., obtained from lees are coming more into demand; therefore, they only use the grape pomace to make the cream of tartar, while the lees are largely exported to Germany or other countries to make acids and cognac oils.

J. SCHMIDT,
Consular Agent.

UNITED STATES CONSULAR AGENCY,
Seville, July 25, 1892.

COLUMBUS IN MADEIRA.

REPORT BY CONSUL HEALEY, OF FUNCHAL.

This archipelago is noted as being the home of Columbus for some years, where he married the daughter of Gov. Perestrello, of the island of Porto Santo. Perestrello was a member of the household of King John, though of Italian origin. The wife of Columbus, as will hereafter be shown, was Perestrello's daughter by his second marriage, and some writers state that he married at Lisbon; but here is what Dr. Jaspar Fructuoso da Silva says in the "Saudades da Terra," book 1, note 26, which was written in 1590:

> An Italian, a Genoese by birth, named Christopher Columbus, a man versed in navigation, came from his land to the island of Madeira, where his chief employment was making nautical charts. In the year 1486 a vessel, either from Andalusia or Portugal, had, through stress of weather, been driven from her course, where she met strange lands and scenes, supposed to be the West Indies, and after a long and tempestuous voyage, having been tossed to and fro on the billows, they were driven to this island, not knowing whither they were going. All the crew except three and the pilot had died. The pilot's name and of what land he was a native are not known. The little band were so badly exhausted and confused that they could give little account of their journeyings. Columbus, finding them in such distressed condition, took them to his home, where he treated them kindly; but being so badly fatigued by their long and perilous voyage, the three sailors died in a few days. The pilot, finding that his end was approaching, and being poor, with no means to pay his benefactor for his hospitalities, gave him some papers and maps, some of which contained interesting notes of their voyage, which Columbus accepted willingly. He was very diligent in his review of them, and, making comparisons with his own views, Columbus then began to think that if by chance he should discover those new lands it would be possible to find in them great wealth and would gain him great honor and profit.

In part 2 of the "Saudades da Terra," notes and indexes by Dr. Alvero Rodrigues d'Azevedo, 1873, the following occurs in note 26:

> We find in the annals of Porto Santo the following interesting notice:
>
> "Christopher Columbus, the Genoese, resided in this island for some time. It was here that he married Dona Fillippa Perestrello, daughter of Bartholomew Perestrello, the first

"dono" of this island, thereby inheriting his father-in-law's manuscripts and those of other Portuguese navigators. These and other observations led to the discovery which has immortalized his name in modern history. He also met here vessels from all parts of the then known world, as well as the celebrated Portuguese navigators Vasco da Gama, Fernando Magalhães, Pedro Calral, and other noted navigators, with whom he sailed on expeditions to the African coasts."

What impressed Columbus's mind more forcibly than even Perestrello's charts was the fact that the Gulf Stream washes the west coast of this island, where were picked up round brown objects called by the inhabitants "fareas ou castanhos do mar" (sea beans or chestnuts). They are the fruit of trees growing in the West Indies, and are now frequently picked up. The seeds may be rattled within their hard shells. This and the picking up of pieces of carved flood wood, coupled with his information from the sailors before referred to, as well as his other observations, firmly convinced him that there were lands in the Western Ocean whence those materials came. On his third voyage to Novo O Mundo he visited the group.

I notice that a learned professor in the October number of one of our leading monthlies, deals at some length with Columbus and the Perestrello family, in which he makes some very glaring misstatements. He says Perestrello had only one son as the issue of his first marriage. The fact is, he had no son by his first marriage. He had three daughters by his first wife, whose name was Beatriz Furtada de Mendonça. The first daughter by this marriage, D. Catherina Furtada de Mendonça, married Mem Rodrigues de Vasconcellos, of this island. The second daughter, D. Fillippa de Mendonça Furtada, married John Teixeira, third son of Capt. Tristão, first captain and governor of Machico, this island. The third daughter, Hizeau, married Pedro Correa da Cunha, who succeeded his father-in-law as owner and *donatorio* of Porto Santo, which he was obliged to deliver to his brother-in-law (elsewhere spoken of) when he arrived at his majority. This Pedro Correa da Cunha was afterwards governor of Graciosa, one of the Azores.

Bartholomew Perestrello's second wife was Izabel Moniz, daughter of Vasco Martin Moniz and a sister of Graçia and Christopher Moniz, the latter a Carmelite father, who was afterwards bishop of Anel. As the issue of the second marriage the following children were born: Bartholomew, who, at his majority, succeeded his brother-in-law in the inheritance of his father's estate, and D. Fillippa Moniz de Mello, who married Christopher Columbus at Porto Santo, as elsewhere stated.

After Perestrello's death his wife sold her son's estate to her son-in-law Pedro Correa da Cunha for 300 milreis ($324) and 30 milreis interest, which, as I have stated, he delivered to his brother-in-law Bartholomew Perestrello when the latter attained his majority.

Another statement by the magazine writer is that Columbus left his wife and children in Portugal when he went to Spain to solicit assistance. The facts that when he arrived at the monastery at La Ribida he had his little son with him and that his wife was dead at the time and buried in the church of Nossa Senhora da Piedade O Carmo, in Lisbon, as recorded in volume 2, page 203, of the records of that church, explode the theory that "he left his wife and children in Lisbon and would never see them again."

The Nobiliarios of Madeira, speaking of the early settlement of Madeira, says:

> The Genoese John Esmeraldo came to the island of Madeira in 1480 and lived in the city of Funchal, where he built a noble mansion on the street which bears his name. He bought from Ruy Gonsalves da Camara the property called Lombada, at Pauta do Sol (22 miles from here on the coast), on January 28, 1493, to which he transferred his residence, having built there a noble mansion, where he lived the remainder of his days. His death occurred on June 19, 1536, and he was buried in the church which he built in 1494.

I visited this famous old mansion on the 15th instant to see how time has dealt with it as compared with the remaining portion of the old Perestrello house at Porto Santo. This massive building has fallen into disuse since the estate was divided among tenants many years ago. It is, indeed, a forlorn-looking building; still, many, very many, changes will be made on the map of the world in its political divisions ere the old building will go down.

I found the timbers in the building quite sound for the most part, more particularly the cedar plates over the doors in the basement, which are as sound as they were when placed there in 1493—four hundred years ago. There was an addition built to it in 1672, and for some reason that portion was reconstructed in 1780. The dates are engraved over the doors of that portion of the building.

The church which he built in 1494 is in a good state of preservation. The first doors that were put in the church were taken out and replaced within the present century, and are kept locked in an upper room of the dwelling. I did not see them, for the reason that the manager was absent at the time. This church stands on a little elevation at a short distance from the house, and is approached by fourteen stone steps. It is far more modern in style and architecture in every respect than the Perestrello chapel at Porto Santo, but I do not think it will endure as many years. As before stated, this is the church in which Esmeraldo is buried. Just in front of the church and house and near by is a little flour mill, whose motive power is water carried to it in an aqueduct from a canal. I found two women attending to the milling or grinding of the *trigo* (wheat).

The Lombada property is a vast and extensive estate, and is divided into two parts by the Ribeiro da Ponta do Sul, which runs through the center of it. So vast were the industries on this estate that in John Esmeraldo's day 20,000 arrobas (640,000 pounds) of sugar were annually produced on it. I found several parties bleaching linen on this *fazenda*.

It was in a house belonging to John Esmeraldo that Columbus lived during his residence in this city. The old house was removed in 1877. A table made from wood taken from the house at the time and some important relics from a Casa do Perestrello at Porto Santo have been sent to the Bureau of the American Republics of the Department of State for exhibition at the

World's Columbian Exposition. Besides these, the writer has secured for himself some relics from the houses, which are esteemed as valuable souvenirs.

The Perestrello house at Porto Santo has not stood the test of time nearly as well as the two latter. It was built close to the foot of a hill in the most secluded part of the town, and a high wall built against the hill; consequently it did not have much air, and no sunshine from that side. Close to it was built the little chapel, which is the oldest and plainest design in this archipelago. It is all stone, including the roof, with a small window 5 inches wide and 36 inches high. This house and chapel seems to have been surrounded by a wall, and there still exists a low wall surrounding the church and chapel and the remains of an old gateway. Had it not been for the fact that Porto Santo is a very dry place, the old house would have gone to ruin years ago. The east wing fell within the present century, and was rebuilt. The southwest wing fell some nine years ago, and is being reconstructed. The center still stands; one of the walls, though, has sunk several inches. A little wing, which seems to have been used for servants, stands, though the greater part of its timbers are entirely rotten and liable to fall any day. The stone stairs leading to the upper floor of this little wing from the kitchen door are badly worn, bearing ample testimony to the many feet that have trodden them for more than four and one-half centuries. The same may be said of the stone stairs leading up to the east wing.

The Perestrello family held the position of *donatorio* from the appointment of Bartholomew Perestrello as the first till 1749, when Estevão Buttencourt Perestrello, who was appointed on April 30 of that year, died while on a visit to Lisbon. One of the above, however, was Pedro Correa da Cunha, before referred to, making in all eleven, which closed the rule of the Perestrello family as *donatorios* in Porto Santo, and also the office. It will be seen by this that the Perestrello family lived in direct line at Porto Santo since the first settlement of the island, and that the old annals of Porto Santo, the "Saudades da Terra" and "Nobiliarios," of Funchal, can give the different gentlemen who are guessing so much and who are so much in doubt about Columbus's movements for several years the information they desire if they will only come here and familiarize themselves with the above authorities.

The first governor of Porto Santo was a Perestrello, who was appointed during the reign of D. Maria I, and so was his successor, who died in 1797, and with whose death ended the Perestrello rule. There were eleven other governors appointed in succession, the last of which was in 1848, who, not having suitable accommodations and owing to the state of his health, after a brief reign of three days, retired to this city, which closed the further appointment of governors for the island.

A portion of a British fleet, for some alleged grievance, attacked the defenseless and inoffensive little town in 1595 and damaged it very seriously. It was sacked on several occasions—by the Moors in 1600, on December 11, 1690, by French pirates, and a second invasion by the same in 1708.

At different other times it suffered many minor pillagings. The island now has a population of 2,006, and, after centuries of ups and downs, sunshine and storm, the little villa sits quietly overlooking the bay.

The following are translations from Luciana Correa's book "Dela Compte Henrique:"

> Christopher Columbus, having lived in Lisbon in 1470, went to the island of Porto Santo, where he established his residence.
>
> According to several chroniclers, confirmed by different writers, Columbus had the use of his father-in-law's maps and reports. According to his son's writings, he traveled with Portuguese sailors, and was supposed to be a Portuguese by birth.
>
> It is true that Bartholomew Perestrello's wife sold her son's estate at Porto Santo to one of her sons-in-law.
>
> The house in which Christopher Columbus lived in the island of Madeira still existed in 1862. It was built in one of the oldest streets of the city of Funchal, at Rua do Esmeraldo, having been lately used as a barn. It belonged to the heirs of John Esmeraldo, one of the first settlers of Madeira. Christopher Columbus was his friend and host.

Ferdinand Columbus, according to Lewis Figuerra, shows himself very much reserved and very little acquainted with the early history of his father's life.

JOHN F. HEALEY,
Consul.

UNITED STATES CONSULATE,
Funchal, December 15, 1892.

COMMERCE OF NICARAGUA.

REPORT BY CONSUL NEWELL, OF MANAGUA.

Through the courtesy of an official of Nicaragua, who was specially deputized by this Republic to examine and report upon the trade condition of this country, I am enabled to furnish the data that enters into this report.

The report covers a period extending from July 1, 1890, to June 30, 1892. It shows the ports via which goods were imported and exported.

IMPORTS.

Table showing the value of imports during 1890-'91 and 1891-'92.

Whence imported.	1890-'91.	1891-'92.
Via San Juan del Sur.		
United States	$48,989.45	$81,273.45
England	54,260.65	21,461.78
France	9,750.81	14,956.80
Germany	15,115.19	15,554.59
Italy	185.00	252.00
Ecuador	2,747.00	
Chile	45.00	
Mexico	120.00	

Table showing the value of imports during 1890–'91 and 1891–'92—Continued.

Whence imported.	1890–'91.	1891–'92.
Via San Juan del Sur—Continued.		
Colombia	$3,868.00	$352.60
Costa Rica	5,051.04	623.59
Guatemala	250.00	58.00
Salvador	9,277.00	3,700.29
Spain	....	586.60
Total	149,649.14	138,820.00
Via Cabo Gracias á Dios.		
United States	76,069.40	....
England	19,704.25	....
Germany	597.76	....
Austria	201.50	....
British Honduras	2,164.07	....
Total	98,736.98	113,796.93
Via Grey Town.		
United States	240,385.93	....
England	54,301.08	....
France	19,268.64	....
Germany	24,258.94	....
Jamaica	11,011.36	....
Colombia	6,684.21	....
British Guiana	756.74	....
Ecuador	2,023.60	....
Italy	669.20	....
Netherlands	2,312.94	....
Other countries	30,439.01	....
Total	392,111.65	373,703.94
Via Corinto.		
France	356,896.07	998,144.43
England	556,992.42	2,132,601.38
Germany	327,928.47	1,042,055.43
United States	655,636.56	1,497,650.95
Italy	2,751.38	12,245.74
Spain	1,235.25	31,465.06
Ecuador	1,960.02	30,819.28
Colombia	1,787.97	43,568.22
Salvador	8,043.68	150,314.77
Guatemala	739.00	23,709.73
Costa Rica	5,634.20	41,418.98
Cuba	....	1,047.10
Mexico	....	1,199.10
Honduras	....	70.00
Argentine Republic	....	495.36
Total	1,920,605.02	6,006,805.53

EXPORTS.

Table showing the quantity of exports during 1890-'91 and 1891-'92.

Articles and whither exported.		1890-'91.	1891-'92.
From Corinto.			
To the United States:			
Coffee	pounds	1,190,834	718,629
Mora	do	672,000	....
Oxhides	do	153,458	139,020
Deerskins	do	65,131	143,353
Rubber	do	61,502	55,231
From San Juan del Sur.			
To the United States:			
Coffee	pounds	40,151	....
Rubber	do	6,069	169
Oxhides	do	9,511	1,943
Deerskins	do	6,501	7,363
Brazil wood	quintals	4,378	....
Cedar	feet	4,060	....
Rosewood	quintals	1,195	....
Cacao	pounds	90	169
Mahogany	feet	14,543	9,700
Do	tons	....	22
To Germany:			
Coffee	pounds	100,385	....
Oxhides	do	777	....
Deerskins	do	845	....
Rubber	do	1,350	....
Anil	do	2,531	2,486
To England:			
Oxhides	do	747	....
Deerskins	do	1,200	....
Rubber	do	456	780
Mora	tons	6	....
Anil	pounds	3,968	6,061
Coffee	do	169,795	23,120
To France:			
Anil	do	732	5,006
Deerskins	do	250	....
Oxhides	do	1,617	....
Rubber	do	709	....
Coffee	do	2,032	....
Rosewood	quintals	510	....
To Salvador:			
Cheese	pounds	53,607	70,448
Queso mantequilla	do	....	186
Butter	do	....	890
To Guatemala:			
Cheese	do	3,220	....
Hilo morado	do	203	334
Zuelos	do	....	56
To Costa Rica:			
Cheese	do	30,399	....
Starch	do	49,141	....
Butter	do	....	220
Rice	do	....	3,800
Tobacco	do	....	23,480
Miscellaneous articles	do	49,141	90

Table showing the quantity of exports during 1890–'91 and 1891–'92—Continued.

Articles and whither exported.	1890–'91.	1891–'92.
From Cabo Gracias á Dios.		
To the United States:		
Rubber ... pounds	148,554	171,155
To countries other than the United States:		
Oxhides ... do	5,619	13,218
Deerskins ... do	568	1,313
Tuna ... do	5,460	....
Rubber ... do	....	1,088
From Grey Town.		
To the United States:		
Coffee ... pounds	1,775,319	1,547,569
Rubber ... do	292,965	300,520
Oxhides ... do	276,092	283,101
Deerskins ... do	82,059	101,084
Anil ... do	11,473	5,312
Cocoanuts ... number	....	48,624
Feathers ... pounds	....	4
Gold ... ounces	8,832	7,260
Silver ... do	49	....
To England:		
Coffee ... pounds	161,078	214,419
Rubber ... do	10,504	5,415
Anil ... do	9,924	....
Gold ... ounces	4,348	5,071
To Germany:		
Coffee ... pounds	165,934	155,157
Oxhides ... do	1,721	9,013
Gold ... ounces	24	....
Deerskins ... pounds	....	2,602
To France:		
Coffee ... do	102,941	17,060
Anil ... do	5,312	....
Rubber ... do	460	2,760
Deerskins ... do	500	....
Oxhides ... do	1,831	....
Cocoanuts ... number	9,024	....
Gold ... ounces	168	743
From Bluefields.[*]		
To the United States:		
Rubber ... pounds	....	184,335
Cocoanuts ... number	....	108,640
Bananas ... bunches	....	729,000
Oxhides ... pounds	....	97
Mahogany ... pieces	....	340
Gold ... value	....	$32,273

[*] From April 1 to September 30, 1892.

Table showing the value of exports during 1890–'91 and 1891–'92.

Whither exported.	1890–'91.	1891–'92.
To the United States:		
From Corinto	$182,722	$60,051
From San Juan del Sur	13,996	7,476
From Cabo Gracias á Dios	74,293	85,768
From Grey Town	551,345	593,107
From Bluefields*	....	529,234
To Germany:		
From San Juan del Sur	18,633	2,486
From Grey Town	25,628	25,106
To England:		
From San Juan del Sur	30,215	19,669
From Grey Town	126,137	126,293
To France:		
From San Juan del Sur	2,086	5,006
From Grey Town	26,661	17,309
To Spanish America, from San Juan del Sur	24,521	22,046
To countries other than the United States, from Cabo Gracias á Dios	1,832	2,783

* From April 1 to September 30, 1892.

There were exported from Grey Town, also, to Italy and Colombia in 1892 goods to the value of $2,336.

WILLIAM NEWELL,
Consul.

UNITED STATES CONSULATE,
Managua, November 26, 1892.

CONSULAR REPORTS

ON

COMMERCE, MANUFACTURES, ETC.

No. 151.—APRIL, 1893.

THE ARGENTINE REPUBLIC IN 1892.

REPORT BY CONSUL BAKER, OF BUENOS AYRES.

This is now the third year since the financial storm engendered of inflation, overtrading, and reckless speculation struck the Argentine Republic, leaving widespread ruin and desolation in its course. At first, aside from the overwhelming fact that in the full tide of its career a great calamity had overtaken the country, it was not possible, in the midst of the wreck and débris of lost fortunes and dissipated revenues, to realize entirely the extent of the collapse. The clouds have since had time to lift and the sky to clear, and the disaster to the nation is now more fully understood. So far as the Government is concerned, it could hardly be worse than it is; so far as the people are concerned, like crises which have overtaken other countries, it is not beyond repair, though the way may be laborious and must pass over the wreckage of fallen fortunes and shrunken values.

RETROSPECT.

Consequent upon the loss of faith in the Government and the want of confidence in the business public, the last year, in every sense of the homely expression, has been an especially "hard" one for the Argentine Republic. There were those who supposed, as the crisis had spent its force, that there would at once be a rebound, and that without further delay we would witness not only a steady improvement in the finances of the nation, but a more hopeful outlook in commercial circles. In neither respect have these expectations been realized. Business has not returned, and will not be able to return, to its normal condition until there shall be a revival of private as well as public credit.

HOSTILITY TOWARD THE LATE GOVERNMENT.

The situation during the past year has been further complicated by the widespread hostility which is manifested by the people toward the Government. As the administration of Dr. Pellegrini was really part and parcel of that of Juarez Celman, who had been driven from office, and was identified with all the evils and excesses which had made the latter odious, it was not possible to get the public either to forgive or forget; and the opposition took every opportunity, by means of incendiary publications, inflammatory addresses, secret organizations, and seditious movements, to overthrow the party in power. Of course, all this had a direct tendency, in the light of former revolutionary episodes, to aggravate the financial troubles of the Government and impede the course of trade. As the time for the Presidential election was approaching these violent demonstrations culminated in what was officially charged to be a widespread conspiracy, with its center here in Buenos Ayres, but ramifying through all the provinces, and in which numerous military and naval officers were implicated, not merely to overthrow the Government, but, with the use of dynamite bombs and other explosive materials, to attack the national authorities in their houses, thus adding murder and arson to revolution. The public only knew of the scheme through the subsequent publications of the Government; but, according to these, all the preparations were ready, and the only thing that remained was to fix the day for the execution, when the authorities were advised of the plot. At once martial law was declared throughout the country, the ringleaders and chief conspirators were arrested and sent on shipboard overnight, and regiments of troops proceeded to patrol and garrison the city. The people awakened the next morning to learn what a narrow escape they had had from a revolutionary outbreak. The state of siege was continued with unrelenting vigor until the day of the Presidential election, the effect being that the voters of only one party appeared at the polls, the other keeping away on the ground, as they said, of military intimidation; thus giving the disfranchised portion of the people still further ground for dissatisfaction and conspiracy, which, if opportunity offers, they may yet attempt to take advantage of.

EX-PRESIDENT PELLEGRINI'S EXPLANATION.

In his recent message to the Argentine Congress, President Pellegrini refers very tersely to these unfortunate political events, which, he says, are the product of the natural peculiarities of the people of the country; and he discusses the "race" difficulties, against which whoever may govern the Argentine Republic will have to contend. Some of his conclusions, coming as they do from the head of the National Government, are so remarkable and convey such a compliment to our own country that I translate a few paragraphs. He says:

> The republic has emerged from an epoch of severe trial. The transfer of political power, an evolution always difficult, has been effected this time under conditions peculiarly delicate. The body politic has been greatly convulsed; so passionate was the contest that we were almost on the borders of anarchy, and before we could solve the problem it seemed that the country—to our profound political and economic discredit—would be delivered over to civil war.

* * * * * * *

> The incidents which have recently been witnessed in this capital have unfortunately proved that the violence which invariably accompanies our elections is the result, not of a want of electoral freedom, nor of the intrusion of the authorities, but of our absolute ignorance of those political aptitudes which are the foundation of free institutions, aggravated by our utter lack of respect for the rights and opinions of our adversaries. Indeed, the ample liberty which was accorded at the recent elections only seemed to increase the threats of violence, which became so great that the people were intimidated and declined to go to the polls. This city on that day exhibited a sad and imposing silence, and it expected every moment to see the streets and voting places converted into battlefields.
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> * * * * * * *
>
> The evils of which we complain have existed from the beginning, and they must still longer continue to exist, since they have their origin in our social and political organism. In order to fulfill faithfully the duties of free government, it is necessary that our natures be so penetrated with the responsibility of such duties that they shall be a part of our very being, and, in the words of a distinguished citizen of the United States, become "the bone and muscle of the people." All fundamental laws and constitutional guaranties will continue to be a dead letter, unless the idea and sentiment which inspires them is born in the people and governs and regulates their conduct.
>
> If there are races which appear to be especially fitted for the faithful practice of free institutions, it is to the experience of ages which they owe their advantage and because the ideas and sentiments of such races have been tested and molded to their present conditions through successive generations.
>
> We have not inherited such aptitudes and political habits, since the brave and audacious adventurers who discovered and dominated our portion of America, much less the native Indians who served as the base of the great mass of our people, could not transmit what they did not possess. It is only through the medium of political education that we can acquire such modes of thought and action—an education which could not be attained during the boisterous days of our colonial existence, nor during the rule of anarchy and tyranny which succeeded it; and certainly in the short space of forty years since we assumed the forms of constitutional law we have not become penetrated with the significance of free government.
>
> Our political regeneration must be a work of patience and labor. It is especially necessary that men and parties should be convinced that the country does not need the services of liberators, statesmen, or restorers of law and order who first invoke the laws and the constitution, then proceed to incite the people to violence and anarchy, and conclude by seeking to suppress all regular government and reëstablish in its place a personal despotism. But the country does need citizens who, while freely exercising their political rights, proclaim as a fundamental principle that violence and anarchy are unpardonable, whether they are in or out of power; and that it is only by the reform of our bad political habits that the Argentine Republic can ever become a worthy illustration of the beneficence of free institutions.

Confessions like these explain the difficulties which the Argentine Republic, as well as South American Republics generally, have to contend with in their efforts to attain to a higher plane of self-government; and the contrast which Dr. Pellegrini has drawn between the manner in which elections here and in the United States are conducted is anything but exaggerated. But his excellency omitted to add another vast difference between the two Republics, and that is that the stupendous official corruption—by which the Argentine revenues were misapplied, the assets of the national banks loaned out to impecunious political favorites and squandered, and the mortgage banks turned over to rapacious land sharks and left without a cent to show for their loans—would not have been winked at in the United States, but those who committed such offenses would long since have been prosecuted and punished to the full extent of the law. It is, however, a lamentable indictment against the Argentine method of transacting the public business that up to the present time not one of all those who made use of their official positions to plunder the Government has been called before the courts to disgorge his ill-gotten gains. Indeed, they parade themselves in public places on all convenient occasions, and they seem to be no less respected than they were before their share in the general wreckage.

It is true the message refers to those who would "repress and punish" their political enemies and impose on them "the hard law of the conqueror;" who would deliver their adversaries over to "doubtful justice" and "persecute their opponents for the wrongs of which they are accused." But Dr. Pellegrini says it is fortunate for the peace and best interests of the country that these agitators have been defeated at the polls.

THE NEW PRESIDENT.

However this may be, it is certain that the newly elected President, Dr. Saenz Peña, has assumed the duties of the office under a prestige which makes every one feel that the Argentine Republic has once more a safe and conscientious Executive, that the revenues of the country will be honestly collected and disbursed, and that the high public trust which he holds will be administered with ability and justice. Dr. Saenz Peña comes to the office with an experience and a ripe familiarity with the duties devolving upon him, which none of his predecessors, except perhaps Sarmiento, possessed; and the programme which he has marked out for himself indicates that his first aim and endeavor will be to rescue the nation from its financial misfortunes and do all that is possible to be done in order to place the country once more upon the road to better times. His inaugural address before the two houses of the Argentine Congress is so short and so terse that it seems appropriate to reproduce the essential part of it. He says:

> The exceptional political circumstances in which the electoral movement of the country is placed, after a shock which endangered constitutional order, have tested the patriotism of the Argentine people. Let us thank Divine Providence that we have concluded the struggle without spilling blood. An elevated sentiment of patriotism silenced the voice of political passion, and public feeling has flowed over all the exigencies of party spirit. The contending parties thought it a patriotic duty to elect a citizen who had no political prejudices, and my candidature was chosen as the best instrument for realizing the general aspiration, cementing permanent order, guarantying all those rights which the constitution accords, and initiating an era of constitutional reparation and honest and upright government.
>
> I know well the difficulties I shall have to contend with. I arrive at the presidency not in the name of any political party, which would render all my efforts useless. I arrive at the presidency in the name of that general aspiration which desires a government of reparation, a government that will cement public confidence, that will insure constitutional order, that will render disorder and anarchy impossible. It is in the name of these noble ends that I accept the chief magistracy. How, may I ask, could I refuse to lend my honest assistance to such great national aspirations?
>
> As collaborators, each in his particular sphere, I will summon all patriots of good will, and I will appeal to that great conservative element which, for reasons I need not mention,

has kept aloof from politics. I will also seek the coöperation of that important foreign element which, settled in the country, participates in our prosperity and our adversity and which has always sympathized with the fate of this country, in which many have built up their fortunes. With these collective forces of opinion I think I can legitimately hope to improve as much as possible the condition of the country.

And now that the period of agitation and electoral struggle is at an end, let us raise our minds to the elevated duties which our country imposes on us. Let us all rally—all of us, without distinction of political color—under the folds of our country's flag, which should protect and stimulate everyone, which ought to urge everyone to work in order to forget the hatred engendered by party divisions. Let each in his own sphere contribute to the work of concord and reparation, in order that we may soon have a return of prosperity throughout the entire Republic.

It is pleasant to be able to say that since the new Government of Dr. Saenz Peña came into power on the 12th of October there has been everywhere prevalent a better and more buoyant feeling, an implied assurance that at least the peace of the country is safe, and that not merely labor and industry, but trade with foreign nations, will not be slow in understanding and taking advantage of the more hopeful situation. Certainly the Argentine people, who for the last three years have been in the slough of despond, are now counting on an improved condition in the commercial, as well as in the financial, affairs of the nation.

ARGENTINE FOREIGN RELATIONS.

The relations of the Argentine Republic with the rest of the world during the last year have continued to be of the most cordial character, and the President in his message expressly refers to the generous confidence expressed by European governments in the rectitude and honor of the country in the midst of its financial embarrassments. The report of the minister of foreign relations is a volume of over eight hundred pages, but it is devoted almost exclusively to matters of secondary importance. Nearly all the cases which have called for the intervention of the representatives of foreign governments have been on account of abuses and outrages upon foreigners by local authorities, and they have been or are in course of amicable adjustment. The attention of the Argentine Congress, however, is called to the necessity of giving to the National Government more extensive jurisdiction of crimes and outrages which may be committed against foreigners residing in the country, "since," as the minister says, "it is the nation which must respond before the world to the treaty guaranties accorded to other nations."

The question of limits with Bolivia, Chile, and Brazil still occupies the attention of the Argentine foreign office. In the first case nothing has been yet effected, but the Argentine Government has just sent a minister to Bolivia in the expectation of initiating the preliminaries to a settlement. In the case of Chile, the commissioners of the two countries are now in the field, engaged in tracing and marking the boundary line down the backbone of the Andes. In the case of Brazil, the matter has been definitely referred by the two governments to the President of the United States; and the title papers are now being made up for transmission, together with the reports of the joint commissions which have for years been trying to reconcile the respective contentions in regard to the true line.

AFFAIRS OF THE PROVINCES.

Politics in the different provinces have not during the last year moved as evenly as the foreign affairs of the nation. As I have already intimated, the principal occupation of people of the interior has been the hatching of conspiracies and plots against the provincial governments. All movements in the line of the development of the resources of the several provinces seem to have been of secondary importance to the political leaders; and their efforts, so far from having been devoted to the establishment of new industries or the opening up of new farms or new *estancias*, have been principally in the direction of overthrowing the constituted authorities and usurping their places, thus causing the General Government an immense amount of trouble and expense in "intervening," by means of the army, in order to maintain public peace and "guaranty a republican form of government to the different provinces." The first of these episodes occurred on the 7th of January last, in the province of Mendoza, which culminated in considerable bloodshed, but which was finally adjusted by Mr. Uriburu, the national "interventor." The province of Catamarca followed suit on the 23d of June in an armed rupture between the legislature and the governor; and, after some bloodshed and the destruction of railway property, Gen. Arias was sent up as "interventor" and put a stop to hostilities. The province of Santiago del Estero about the same time was also the scene of revolutionary movements; and, after a battle, the governor and the members of the legislature were captured and put in prison and thus held "in durance vile" until the National Government sent a detachment of troops to the scene of conflict and suppressed the insurgents. The provinces of Cordoba, Tucuman, Corrientes, and Entre Rios have also been in a state of commotion, on account of conspiracies and local uprisings, during which the ordinary course of business was greatly interfered with, and peaceable people were taken from their plows or from the care of their flocks and put in the militia ranks to fight the battles of political *caudillos*. While I write there is very serious trouble in the province of Corrientes between the "ins" and "outs," the leaders of the two hostile factions having been warm political friends until the breaking out of this feud, and now we are advised that several thousand insurgents are under arms. Meanwhile the National Government has named an "interventor" and is sending up troops to "command the peace." It will be understood that these periodical "revolutions," which, it was supposed, were at end forever in this country, are "bad things to have;" and, especially in provinces which are already financially bankrupt, they have had a depressing effect upon their progress and development, few persons caring to invest their money where there is so little security "for life, liberty, and the pursuit of riches."

PROGRESS OF THE NATIONAL TERRITORIES.

In spite of the financial condition of the country, I am able to report that the national territories—all now organized under territorial government—have during the last year exhibited a very marked improvement in all the elements of wealth and population. All through the vast plains of the southwest there has been a steady movement of population. New *estancias* have been opened and wired; and cattle, sheep, and horses are now grazing and increasing in numbers where a year or two ago there was nothing but vacant pampa and outlying desert. The more intimately we become acquainted with the southwestern portion of the country—extending down from the province of Mendoza along the foothills of the Cordilleras—the fewer appear to be the obstacles in the way of its being able to support a large population and an unlimited amount of stock; and all the available lands in those regions are being rapidly taken up by hardy adventurers, many of them from the northern countries of Europe. The territories in the northern portion of the Republic also show signs of gratifying development and are moving forward to the days of better things. The great drawback in the way with all the territories is the impossibility just at present of receiving any such assistance and material aid from the General Government as their necessities require in respect to local administration and better means of intercommunication.

Territory of Misiones.—This territory, about whose limits on the Brazilian frontier there has been such a long and persistent dispute, has an area of 60,000 square kilometers and a population of 25,000. Very little of the soil is as yet under crop cultivation. It has one sugar establishment, seven distilleries, twelve farina and starch mills, three tanning establishments, one sawmill, and one Paraguayan-tea factory. It has 40,000 horned cattle, 5,500 horses, 5,700 sheep, and 4,000 hogs. The shipments last year were 449,359 meters of cabinet woods, 851,335 kilograms of *yerba mate*, 281,141 kilograms of sugar, 78,392 kilograms of tobacco, and 254,124 kilograms of maize. There were 220 steamers and 104 sailing vessels, with an aggregate tonnage of 15,795 tons, which entered at the port of Posadas, the capital of the territory.

Territory of Formosa.—This territory, which lies along the west bank of the Paraguay River, has an area of 115,671 square kilometers. It now has 5,000 inhabitants, and there are about 4,000 acres under crop cultivation. It has two sugar establishments, two distilleries, one factory of vegetable fiber, and one sawmill. There are now seven pastoral establishments, with 20,000 horned cattle, 2,200 horses, and 500 sheep. It has some trade with the Indians. Last year it received merchandise to the value of $379,000, and its shipments amounted to $125,000. It is only accessible from the river, as there are neither roads nor bridges through the interior wilderness.

Territory of the Chaco.—The area of this territory is 125,000 square kilometers, of which 355 kilometers are in cultivation. It has one sugar establishment, two distilleries, two mills, and two steam sawmills. It has 150,000 horned cattle and 2,500 sheep. The population is 32,000. Owing to the want of roads the interior is at some seasons of the year quite inaccessible.

Territory of the Pampa.—This territory lies to the southwest of the province of Buenos Ayres, and in general appearance quite corresponds to it. It has an area of 142,000 square kilometers, 28,500 inhabitants, 22,000 hectares under cultivation and one hundred and forty-two industrial establishments. It has 1,100,000 horned cattle, 6,000,000 sheep, 250,000 horses, 300,000 goats, and 30,000 hogs, besides various *cabanas* of ostriches, guanacos, etc. It produced last year 4,496,835 kilograms of wool, 21,000 kilograms of hair, 14,849 kilograms of ostrich feathers, 212,914 kilograms of sheepskins, 3,600 tons of wood, and 220 tons of saltpeter. The railways from the Atlantic seacoast are gradually finding their way through this promising portion of the Argentine Republic.

Territory of Neuquen.—This is the westernmost of the Argentine territories, lying south of the province of Mendoza and adjoining the Republic of Chile. It has an area of 109,000 square kilometers and a population of 30,000. The National Government has done nothing in the way of its settlement, though it is the thoroughfare for the movement of cattle, mules, and horses to Chile and is noted for its fine "camps" and succulent grasses. It possesses a number of fine rivers and water courses, has immense forests, vast mineral wealth, and a soil admirably adapted for agriculture. The soft pine is reported to be found there in vast supply, "as tall and of as good qualities as that which is imported from the United States." But as yet there are no easy means of communication, and its exploitation must be remanded to some future time.

Territory of the Rio Negro.—Beyond all odds this is at present the most advanced of any of the Argentine territories. With ports on the Atlantic, with two fine rivers flowing through it, with easy access over the mountains to Chile, and with a soil well adapted for cereals, it has advantages which must very soon bring it to the front. It has a population of 20,000 inhabitants, with seventy-eight pastoral establishments containing 400,000 head of horned cattle, 50,000 horses, and 2,520,000 sheep. It received last year merchandise to the value of $1,550,000 and shipped from its seaport—Viedma—produce to the value of $1,560,000. This port, now having 3,000 inhabitants, is connected with Buenos Ayres by telegraph, and it is expected that the Southern railway will ultimately be extended to Carmen de Patagones from Bahia Blanca.

Territories of Chubut, Santa Cruz, and Terra del Fuego.—Not much can yet be said in regard to these three territories, because thus far there has been no development. It may be stated, however, that even the steppes of Patagonia—which have heretofore, for want of water and vegetation, been regarded as quite unfit for human abode—have been found, upon more intimate survey, to be made up in many parts of extensive parks, grassy meadows, fertile valleys, and frequent small water courses quite well adapted to the cattle industry. Already the territories of Chubut and Santa Cruz are showing signs of civilized life and industrial progress, and the ports of Chubut and Port Gallegos are becoming the centers of no inconsiderable population. Chubut especially is surrounded by promising farms, which produce the very best of wheat and corn, and it is doing quite a prosperous business with Buenos Ayres. Owing to a bar at the mouth of the Chubut River, a railway of 70 kilometers in length has been built from the town to New Bay, where there is deep water and a good anchorage. I have conversed with Father Vivaldi, a Catholic missionary priest, who is quite familiar with the country to the head waters of the Chubut River, and he says there are portions of it which are lacking in no natural advantages for agricultural purposes, while other parts are rich in mineral wealth. An exploring expedition organized by the governor of the territory, which went as far as the foothills of the Andes, has also recently made a most favorable report to the National Government in regard to the possibilities of the western portions of the territory. The country along the Rio Santa Cruz is represented to be equally promising in minerals, while much of the pampa from the Rio Gallegos to Cape Virgenes, and thence along the Straits of Magellan to Sandy Point, is already quite settled and dotted with large sheep and cattle *estancias*. The movement of progress has even at last reached the mysterious regions of Terra del Fuego, of which Darwin reported that "it was not possible to find an acre of level land," and the extensive plains of that desolate country, under a recent law of the Argentine Republic, very speedily promise to be dotted with sheep farms and the hillsides and gulches with mining camps. Already the town of Ushuaia, on the southern coast, now a place of call for Argentine steamers, is surrounded by pleasant gardens and *chacras*, while the Indians, educated by the Rev. Mr. Bridges, converse in the English language and have put on the garb of civilization. All this is the more gratifying from the fact that so little has ever been expected of Patagonia and so much less of Terra del Fuego.

The President, in his recent message, recommends that a census be taken of the different territories, with a view to a thorough knowledge of their economic conditions; and we may anticipate that it will not be very long before some of them will be knocking for admission as new provinces in the Argentine constellation.

THE PUBLIC LANDS.

While there is such unexpected promise for the outlying territories of the Argentine Republic, with their thousands of leagues of pampa, it is unfortunate that the Government has exhibited so little wisdom in disposing of its public domain. Instead of dividing the public lands into small tracts and putting a minimum price upon them, not beyond the means of the ordinary farmer, the policy has been to dispose of them at public auction in tracts of from 1 to 5 leagues, which, of course, prevented everybody but "land-grabbers" and speculators from bidding for them. Worse than this, there has grown up a system of making concessions of large tracts of farming lands to moneyed proprietors upon condition that they would organize upon them what are called "agricultural colonies," the proprietors buying at a nominal price and on long time and then selling out in small tracts at exorbitant rates. The amount of swindling of which the nation has been the victim by this ruse can hardly be estimated.

The report of the minister of the interior for the present year states the amount of land which has thus been "given away" since the colonization law of 1876 at 30,000 square miles, and not a single colony organized. And the President, in his message, congratulates the country that during last year "over 3,000 leagues of public lands were saved from the grasp of concessionaires who had not complied with the conditions attached to their grants." It is a simple sum in subtraction to find the number of square miles which have not been thus saved. Besides these concessions, the land office from 1876 to the end of 1891 reports as follows in regard to the sales of land:

Period.	Acres.	Product.
1876-'90	7,620,000	$2,470,000
1890-'91	3,480,000	3,213,000
Total	11,100,000	5,683,000

This product is made up of $712,000 cash and $4,974,000 in bills. The sales from the 1st of January, 1891, to the 31st of March, 1892, were as follows:

Class.	Acres.	Price.	Per acre.
Grazing lands	3,392,000	$377,000	$0.11
Farming lands	88,000	2,836,000	32.20
Total	3,480,000	3,213,000	

It is hardly to be expected, in a country where there is so much favoritism in the parceling out of the public lands, that the beneficent laws which in the United States make provision for preëmption to actual settlers and homesteads to families will be enacted in the Argentine Republic; but such projects are now proposed to Congress, and, if they should be approved, they would assist very greatly in opening up the waste places of this country to agricultural settlers. As it is, those who are seeking farming lands are compelled to buy at high prices and on hard terms; and in too many cases, after making improvements, they are not able to complete their purchases, and they are ousted from their possessions.

IMMIGRATION.

The general depression in all departments of industry consequent upon the crisis has had a marked effect upon immigration to the Argentine Republic during the last year. The departures have very considerably exceeded the arrivals. The figures for 1891, compared with 1890, are as follows:

Movement.	1890.	1891.
Arrivals	138,407	73,597
Departures	82,981	90,936

Thus, while in 1890 there was a net gain of 55,426 immigrants, there was in 1891 an actual loss of 17,339. It must be said, however, that the greater number of departures were of persons who were unwilling to try their chances in the interior, but lingered here in Buenos Ayres in a state of impecuniosity, without work and with no desire to work; and their loss has been well made up by the new arrivals, who were mostly agricultural families and who have found profitable employment in the agricultural colonies.

The large proportion of immigration continues to be from Italy, though among those who arrived last year were 2,850 Russian Jews, sent out from Europe by Baron Hirsch, who have been placed in colonies in this province.

It may be well to state that the Argentine Government has entirely abolished the system of paying immigrant passages to this country, thus saving to the treasury millions of dollars and from the River Plate the refuse of European paupers. The minister of the interior reports that the sum paid by the Government to bring out immigrants from Europe on their guaranties amounts to $5,315,000, of which only $54,000 have been refunded—that is to say, 99 per cent of the money is lost.

AGRICULTURAL INDUSTRY.

In spite of the fact that the tide of emigration last year was against the country, the temporary circumstance seems to have had no perceptible effect upon its agricultural development. That has now assumed such proportions as to leave it no longer doubtful that the Argentine Republic is henceforth, in estimating the world's supply, to be considered as one of the food-producing countries of the western hemisphere. There is no official bureau to collect, digest, and publish the agricultural statistics of the country, and hence in this matter we can only estimate and calculate. Fortunately, however, Mr. Aloes Fliess, who has for a long time devoted himself to this business, was commissioned last year by the Government to estimate the crop of 1892, and, after spending nine months in the different provinces, assisted by the local authorities, he has compiled a report on the subject which is full of information. I reproduce some of his figures. He states the total area under crops in 1892 at 8,862,000 acres, against 7,487,000 acres in 1891—an increase of 1,375,000 acres.

The acreage was distributed among the several provinces as follows:

Province.	1891.	1892.
	Acres.	*Acres.*
Buenos Ayres	2,406,000	2,765,000
Santa Fé	1,640,000	1,985,000
Cordoba	1,310,000	1,700,000
Entre Rios	604,000	766,000
Mendoza	477,000	500,000
San Juan	280,000	303,000
Tucuman	124,000	136,000
Corrientes	116,000	117,000
San Luis	119,000	148,000
Catamarca	112,000	115,000
Salta	100,000	105,000
La Rioja	55,000	60,000
Santiago	50,000	62,000
Jujuy	47,000	50,000
Territories	47,000	50,000
Total	7,487,000	8,862,000

The acreage under the different crops in 1891 was as follows:

Crop.	Acres.	Crop.	Acres.
Wheat	2,990,000	Tobacco	13,000
Maize, or Indian corn	2,050,000	Linseed	140,000
Barley	110,000	Sundries	617,000
Alfalfa	1,495,000	Total	7,487,000
Grapes	72,000		

The crops of the different provinces for 1891 showed as follows:

Table showing the crops of the different provinces in 1891.

Province.	Wheat.	Maize.	Sugar cane.	Alfalfa.	Grapes.*
	Tons.	*Tons.*	*Tons.*	*Tons.*	
Buenos Ayres	335,000	470,000		483,000	$1,000,000
Santa Fé	507,000	50,000		500,000	
Cordoba	107,000	167,000		1,885,000	
Entre Rios	116,200	26,000			300,000
Mendoza	15,000	60,000		1,253,000	2,688,000
San Juan	15,000	32,000		850,000	2,655,000
Tucuman	1,500	40,000	670,000		
Corrientes	2,500	29,000			
San Luis	6,500	18,000		326,000	
Catamarca	1,300	6,000			
Salta	6,000	25,000		142,000	
La Rioja	6,000	18,000			
Santiago	5,000	6,000		130,000	
Jujuy	4,000	16,000			
Territories	2,500	5,000			
Other provinces			106,000	236,000	1,167,000
Total	1,130,500	968,000	776,000	5,805,000	7,810,000

* Value in gold.

Table showing the crops of the different provinces in 1891—Continued.

Province.	Linseed and turnip seed.		Tobacco.	
	Acres.	*Tons.*	*Acres.*	*Tons.*
Buenos Ayres	72,000	30,000		
Santa Fé	56,000	20,000		
Cordoba	12,000	4,000		
Entre Rios			1,050	85
Tucuman			5,000	3,000
Corrientes			2,800	1,760
Other provinces	2,000	500	4,150	640
Total	142,000	54,500	13,000	5,485

The total weight and value of the different crops are stated by Mr. Fliess as follows:

Crop.	Weight.	Value.
	Tons.	
Wheat	1,130,000	$45,223,000
Maize	968,000	14,648,000
Barley	49,000	1,483,000
Linseed and turnip	54,000	2,166,000
Alfalfa	5,805,000	57,219,000
Sugar cane	760,000	3,835,000
Grapes		7,811,000
Tobacco	5,500	3,999,000
Sundries		9,247,000
Total		145,631,000

The distribution of the value of the crop of 1891 to the different provinces is given by Mr. Fliess as follows:

Province.	Total value of crop.	Value per acre.
Buenos Ayres	$28,850,000	$12.00
Santa Fé	28,438,000	17.30
Cordoba	28,041,000	21.40
Entre Rios	7,405,000	12.10
Mendoza	17,403,000	36.40
San Juan	12,315,000	44.00
Tucuman	6,740,000	53.60
Corrientes	2,626,000	22.50
San Luis	4,099,000	34.40
Catamarca	2,992,000	40.00
Salta	2,414,000	23.60
La Rioja	1,254,000	22.40
Santiago	1,713,000	33.60
Jujuy	806,000	16.80
Territories	535,000	11.60
Total	145,631,000	19.20

The foregoing tables are all Mr. Fliess's figures, as given in an official report to the Government; but it may be proper to say that in some respects they differ very essentially from the estimates of M. G. Mulhall, esq., the well-known statistician and editor of the Buenos Ayres Standard. Mr. Mulhall estimates the total value of the harvest of 1891 at only $85,700,000 as folows:

Crop.	Value.	Crop.	Value.
Wheat	$25,500,000	Sugar	$3,000,000
Maize	13,500,000	Sundries	15,600,000
Alfalfa	23,000,000	Total	85,700,000
Grapes	4,500,000		
Tobacco	600,000		

Thus the difference between the estimates of the two statisticians is $59,931,000. So much for statistics based on estimates. It may be well to add, however, that the estimates of the total area under tillage in 1891 by the two statisticians are nearly the same, that of Mr. Mulhall being 7,427,000 acres and that of Mr. Fliess 7,487,000 acres.

EXPORTS OF BREADSTUFFS.

I bring down the table of exports of breadstuffs from the Argentine Republic so as to include the year 1891 and nine months of 1892, as follows:

Year.	Wheat.	Corn.	Flour.
	Tons.	*Tons.*	*Tons.*
1882	1,700	107,000	———
1883	61,000	19,000	———
1884	108,499	113,710	3,734
1885	78,493	197,859	7,447
1886	37,864	231,660	5,262
1887	257,865	361,844	5,442
1888	178,928	162,037	6,392
1889	22,806	432,590	3,360
1890	327,894	707,281	12,017
1891	395,555	65,908	7,015
1892 (9 months)	438,738	384,635	12,394

THE CROP PROSPECTS.

The prospects of the coming harvests have, up to the present time, been very reassuring, and, with an increased tillage of upwards of 1,250,000 acres, it has been expected that there would this season be a larger surplus of breadstuffs for export than ever before in the history of the country. The locust, however, that scourge of the Argentine farmer, is reported to have already put in an appearance in the provinces of Buenos Ayres and Santa Fé and is doing some damage to the growing crops. The pest has appeared in such immense quantities in some places that railway trains have been stopped by them settling on the tracks. The National Congress has adopted measures and voted money to exterminate them; but it does not seem to me that there is any adequate remedy against leagues upon leagues of these devouring insects, which come and go in such swarms as to obscure the sun at noonday. So that, while the harvests of the present year may be the largest on record, there is a fear that it may in places turn out a comparative failure. The fortunes of the Argentine Republic in a great measure depend upon the result. A good yield, with a fair market abroad, means better times and an easing up of the stringency. A failure means a continuation of the depression.

THE CATTLE INDUSTRY.

The cattle industry has made no appreciable advance during the last year. This may be on account of the general stagnation of business, though it would hardly seem that an industry whose output finds its market in other countries would be very greatly affected by the crisis here. Of course, it continues to be one of the great interests of the Argentine Republic, but for several years past it has exhibited no increased development; and the *saladero* exports, the best index in such matters, do not afford such figures as would indicate that it is making any perceptible progress, and this in the face of the fact that new cattle *estancias* are being opened all through the new territories. I give the following comparative figures of exports for the last three years:

Articles.	1889.	1890.	1891.
Ox horns ....tons...	1,756	2,289	2,428
Bones ....do......	27,680	38,787	57,086
Horsehair ....do......	1,794	2,324	2,341
Skins:			
Goat ....do......	1,045	1,462	963
Kid ....do......	369	503	382
Sheep ....do......	36,378	27,148	24,170
Cowhides:			
Dry ....number...	2,424,596	3,053,649	2,678,905
Salted ....do......	966,177	1,294,101	1,262,502
Jerked beef ....tons...	41,767	43,481	39,635
Meat extract ....do......	52	187	194
Hide cuttings ....do......	1,488	1,822	1,784
Wool, unwashed ....do......	141,774	118,405	138,605
Preserved tongues ....do......	391	741	784
Dried blood ....do......	463	492	648
Grease and tallow ....do......	18,319	17,361	20,725

While the export of wool in 1891 compared with 1890 shows an increase of 20,000 tons, it appears from the custom-house tables that the value in 1891 was $515,837 less than it was in 1890.

SHIPMENTS OF WOOL AND SHEEPSKINS.

The following table shows the shipments of wool and sheepskins, with the country of their destination, during the year 1891:

Country.	Sheepskins.		Unwashed wool.	
	Quantity.	Value.	Quantity.	Value.
	Kilograms.		*Kilograms.*	
Germany	1,128,848	$225,769	28,529,915	$7,417,778
Belgium	287,388	57,478	34,292,339	8,916,000
United States	281,161	56,231	5,781,150	1,503,099
France	15,232,070	3,046,415	58,449,965	15,196,991
Italy	2,919,919	583,984	2,121,351	551,551
Great Britain	2,358,424	471,684	2,253,322	585,864
Destination not given	1,922,090	392,630	7,177,796	1,866,226
Total	24,169,950	4,833,991	138,605,838	36,037,518

In former years the exports of the clothing wools of the Argentine Republic nearly all went to Germany and Belgium; but lately it has been found that Dunkirk, France, as a distributing center for other markets has facilities and advantages which the former countries do not possess. In 1879 the number of bales shipped to Dunkirk was only 7,341; in 1891 it was 180,000 bales.

It will be seen that England is a very limited purchaser of Argentine wools. Nearly all her supply comes from Australia.

The only wools which go to the United States from the Argentine Republic are the Cordoba carpet wools from native sheep, which are shipped from Rosario and go mostly to the Boston mills. It is impossible, under our tariff, to ship clothing wools from this country to the United States, except at a loss to the exporter. In regard to the quality of Argentine wools, I take the following from a recent publication of Mr. Lix Klett, the greatest authority here, on the subject:

> The Argentine Republic at the last international exhibition in Paris achieved a great triumph for its wools. Out of a total of two hundred and thirty-six prizes awarded to all countries, the Argentine Republic carried off one hundred and two prizes. This circumstance shows what progress we have made, and how we have succeeded in improving the quality of our wools. Since that exhibition took place the quality of the wool has continued to improve, and the wools of the province of Buenos Ayres to-day are much superior to those forwarded to Paris in 1889. The percentage of yield has considerably increased. As a rule, the Rambouillet wools and the wools from the south give very high yields, from 37 to 44 per cent; western wools, 36 to 42 per cent; and northern wools, from 34 to 40 per cent. The Lincoln and Rambouillet crosses in the south have done so well that the yield is from 45 to 68 per cent, and even a yield of 70 per cent has been recorded. The province of Buenos Ayres produces the best wools in the country.

PRESERVED MEATS.

In my last annual report I referred to a new enterprise which had been commenced here on a large scale—that of preserving, preparing, and canning meats, etc., for the European market. This branch of the cattle industry—quite separate and distinct from what is called the work of the *saladeros*—has continued to prosper, and it promises to be a great success. The shipments of these prepared meats commenced in 1889, and the official figures since then are as follows:

Year.	Quantity.	Value.
	Tons.	
1890	474	$46,661
1891	2,876	253,926
1892 (9 months)	6,852	616,738

The company which makes a specialty of thus preparing meats for the European market is in great part owned in Scotland. It has a capital of $2,000,000 and a plant about 25 miles from this city which embraces several thousands of acres. It has special privileges from the Government; and, owing to the fact that it has no inland transportation to pay, owns its own line of steamers to England, and can buy unlimited supplies of bullocks at much lower rates than they sell for in the United States, its canned meats can be put down in the markets of Europe at prices very much below those which similar companies in the United States are compelled to charge. It will not be strange if, under these circumstances, the Argentine product eventually monopolizes the business.

FROZEN-MEAT BUSINESS.

The frozen-meat business during the last year has also continued to prosper. The old establishments have extended their facilities, and new ones have been opened. There are now regular lines of traffic steamers whose sole business is to transfer frozen carcasses to Europe, having been fitted up for that object with all the modern improvements of iced compartments.

The exports of congealed meats since the business was inaugurated in 1885 have been as follows:

Year.	Quantity.	Value.
	Tons.	
1885	2,860	$75,323
1886	7,350	360,508
1887	12,038	963,112
1888	18,027	1,498,182
1889	17,487	1,399,276
1890	20,413	1,633,105
1891	23,741	1,899,360
1892 (9 months)	19,543	1,562,675

These congealed meats are shipped almost exclusively to England and France. In spite of published reports to the contrary, it is plain that this business would not have assumed these large proportions if it did not pay.

EXPORTS OF LIVE STOCK.

The export of live stock has been fairly active during the last year, the whole business amounting to $5,237,393, against $4,574,618 in 1891. The following table shows the movement during the last five years:

Animals.	1887.	1888.	1889.	1890.	1891.
	Number.	*Number.*	*Number.*	*Number.*	*Number.*
Asses	6,200	9,632	8,821	6,793	6,790
Horses	3,419	6,047	5,961	29,052	20,703
Sheep	29,413	22,616	19,526	50,008	114,691
Mules	6,445	6,893	12,104	11,755	14,703
Horned cattle	70,707	94,726	136,937	150,003	171,105

It appears that the asses went to Bolivia; the horses to Brazil, Chile, Great Britain, and Uruguay; the sheep to Brazil, Chile, France, Great Britain, and Uruguay; the mules to Bolivia and Chile; the cattle to Bolivia, Chile, Brazil, Great Britain, and Uruguay. The shipments of cattle and sheep to Great Britain and France for food purposes can hardly yet be considered a success pecuniarily.

MINES AND MINING.

There is nothing new in regard to mines and mining in the Argentine Republic. While there has been considerable discussion in the newspapers in regard to new mines and a better promise in old ones, the output for 1891 has not been at all commensurate with the outlay. At least, however, there has been some official movement in the matter of Argentine mines; and Mr. Hoskold, the director-general of mines, has published a pamphlet on the subject, accompanied by a map of the Republic, which shows the various plans of mining works and shafts. His report is not without some public interest, and I give below a condensed translation of the most important portions, as published in a recent number of the Buenos Ayres Standard:

> That the Aztecs and Incas worked the gold and silver veins up to the time of the Spanish conquest is proved by the discovery of extensive workings in some of the ancient mines and the curious instruments and implements found in them.
>
> The second great period is that of the Jesuits, who had a numerous body of Indians occupied in working the mines until the expulsion of the order in 1767.
>
> There are at present nine mining provinces and seven mining territories, covering altogether an area of 731,000 square miles. The old Spanish mining law held force from 1771 to 1887, when a new code was introduced of a very obnoxious character. The legal area of a concession by this new code is as follows:
>
> | | Acres. |
> |---|---|
> | Gold mines | 24 |
> | Iron mines | 30 |
> | Coal mines | 44 |
> | Nitrate mines | 247 |
>
> In the provinces there are 2,000 concessions of all classes, and since 1886 about 1,500 have been solicited from the National Government for minerals in the Federal territories.

RIOJA.

The Mexicana mines, in the Famatina range, are the best copper mines in the Republic, and are situate 17,000 feet over sea level. Some samples have given a yield of 44 per cent of pure copper and about 30 per cent of sulphur. The veins average from 18 to 26 inches thick, but in some places reach 48 inches. The ore is carried from a depth of 330 feet to the surface upon boys' backs, although every facility exists for the formation of lateral galleries. The ore is then transported by pack mules for three days' journey to the lower levels. The average obtained from a lot of 937 tons of crude copper mineral was: Copper, 15 per cent; silver, 67 ounces per ton: gold, 1¼ ounces per ton.

There are also many other copper mines in this province, the commercial value of which is not ascertained. The silver mines of Rioja vary from 10,000 to 14,000 feet over sea level, at Cerro Negro, Tigre, and Caldera. The old German rhyme holds good in this district—

> "For a mine to be rich and fat
> It must have an iron hat."

Nearly all the above mines consist at the surface of a ferruginous mass, but the iron decreases and the quartz increases as we go deeper. Samples from the Cerro Negro in 1881 gave—

	Per cent.
Silver	27
Iron	14
Zinc	4
Nickel	3

The mine most worked at Cerro Negro is the Peregrina; the returns from 1873 to 1882 averaged 2½ per cent of silver. San Miguel mine, at the Tigre, averaged not quite 1½ per cent from 1877 to 1882; the Caldera mines rather more than 1½ per cent. Native silver has been found in masses at Cerro Negro, two samples bought by Mr. Hoskold for the Museum of Mines yielding 87 per cent of pure silver. Coal has been found at Paganzo, in this province, and Prof. Brackebusch considered that the field was of such extent as to supply the whole world. Samples showed 65 per cent of carbon. Four borings were made, but only thin bands of bituminous shale were discovered.

CATAMARCA.

The principal copper mines are at Capillitas, in the northeast, where the Restauradora has been worked for twenty-seven years to a depth of 1,000 feet. Large samples show 20 to 30 per cent of copper. A sample from the Hoyada mines (little worked) in the northwest of the province gave: Copper, 11 per cent; silver, 183 ounces per ton; gold, 10 ounces per ton.

This province possesses the largest smelting works in the country, the establishment of Mr. Lafone Quevedo, at Pilciao. The ore is conveyed thither from Capillitas by pack mules in two days. Wood is used for fuel. The copper bars usually contain 90 per cent of copper metal, 200 to 300 ounces of silver and 10 to 15 ounces of gold. As a rule, the ore from Capillitas yields 30 per cent of copper. There is a smaller smelting establishment at Pipanaco, where the owner says that it takes 25 tons of firewood to reduce 15 tons of ore, the wood costing 40*d.* (English) per ton.

SALTA.

This province is also noted for its copper mines. That of Chacabuco has been worked several years, samples showing 48 per cent of copper and 1 per 1,000 of silver. San Antonio gave the following: Copper, 40 per cent; silver, 0.57 per cent; besides one-sixth of an ounce of gold per ton.

JUJUY.

There are several galena mines yielding silver, also gold mines that average half an ounce per ton, and some gold washings.

The Mendoza Petroleum Company made two borings in Jujuy for petroleum, but without success.

TUCUMAN.

The mountains in the western part contain many old mines, but the natives prefer growing sugar. The mining district runs northward from Capillitas, in Catamarca, and the following assays were reported in 1882: Copper ore, 38 per cent; silver ore, 18 to 25 per cent.

The above are on the authority of a report published by the government of Tucuman.

CORDOBA.

Copper and galena mines were worked on various occasions, but were so badly managed (as in the Rara Fortuna mine) that they did not pay for working.

SAN LUIS.

This province was called El Dorado in the time of the Spaniards, but in modern days has not justified that epithet. The Carolina mines are best known. There are two English companies, with £26,000 and £10,000, respectively, of paid-up capital. Local statistics affirm that the gold mines yield 5 ounces of gold per ton of ore.

SAN JUAN.

San Juan contains mines of gold, silver, copper, iron, lead, and lignite. Copper samples yield from 9 to 44 per cent of copper metal. A few mines of various kinds are worked on a small scale. The working of coal (properly lignite) proved a failure. Mr. Hoskold, however, thinks that San Juan will one day prove a great center of mining industry.

MENDOZA.

The mountain districts possess copper, galena, and other minerals. Samples of copper are found to yield 20 to 40 per cent of the metal, besides 1 per 1,000 of silver. Thin seams of bitumen have been found in many places, of no value, but a new coal field near San Miguel is expected to give good results. Samples of this coal have been analyzed by Dr. Kyle, director of the mint assay, and found to have from 48 to 60 per cent of carbon, with a calorific power of 5,405. Some borings for petroleum to a depth of 650 feet were successful, and a 4½ inch iron pipe was laid down 22 miles to the nearest railway station, where petroleum was used as fuel for the engines.

NEUQUEN.

An extensive coal field is reported in this territory and samples result as follows: Carbon, 50 to 54 per cent; coke, 57 to 61 per cent; calorific power, 4,570 to 4,636.

This is supposed to be a continuation of the San Rafael coal field. Concessions have, moreover, been taken out for working mines of gold, silver, copper, lead, petroleum, and nitrate in this territory.

SANTA CRUZ.

Gold has been frequently discovered along the coast of Patagonia and Terra del Fuego, the heavy seas washing up gold on the beach; and this has lead to the belief that an immense quantity of the precious metal is deposited in the trough of the sea. In these days of engineering science, Mr. Hoskold says, it may not be found too difficult to carry on dredging experiments with this object.

CHUBUT.

Gold washings have been discovered and exploring concessions granted.

MISIONES.

The mountainous part seems rich in minerals. It is known that the Jesuits had copper mines in this territory, and some companies have been formed to revive the old works.

TERRA DEL FUEGO.

Lignite exists in large quantities of a superior kind, with 48 per cent of carbon. It is believed that it might be utilized, and a coal station formed in some sheltered inlet for passing steamers.

As Mr. Hoskold has devoted eight years to the mines and mineral resources of the Argentine Republic, his estimate of their richness and productive capacity is entitled to consideration. It will be seen, however, that so far as gold is concerned he says little that is encouraging to enthusiastic miners.

Since Mr. Hoskold's report was published there has been some excitement about rich gold discoveries in some of the islands of Terra del Fuego, and there has been a rush of miners in that direction. I am quite incredulous in regard to the stories which have been published, and think there will be ultimate disappointment. Mr. M. E. Levaggi, however, has written from Terra del Fuego on the subject, and gives some figures, which, if true, are very encouraging. He says:

> If you look at the map you will see between 55° and 56° south latitude three islands of irregular shape, situated to the south of Terra del Fuego and the east of Navarino. Two of these islands have leaped into fame; the other is still steeped, from a gold point of view, in obscurity. The two alluded to are named, respectively, Lennox and Nueva islands. The third is called Picton Island. As a rule they are hidden from sight by a thick mist. They are mountainous and covered with timber. The soil is always damp; it is like a soaked sponge. The three cover, perhaps, 70 square miles. There are lakes on these islands. There are safe harbors and creeks all round them, and they have a beautiful beach of auriferous sand. To these islands the gold-seekers flocked. In six months they extracted, by the simple method of washing the sand, no less than 2 tons of gold; the largest gold particle was found to weigh 72 grams. In Nueva (or New) Island 200 miners extracted half a ton of gold; 80 men in the north end of the bay extracted a quarter of a ton, and other gangs were equally successful in other parts of the beach. On Lennox Island 500 men threw up 16,000 cubic meters of sand and found 1¼ tons of gold. There have been lucky parties of 8 men who have found respectively 200 pounds of gold. One party of 6 men who were returning laden with gold were drowned, the boat capsizing and the weight of the precious metal dragging the unfortunate fellows to the bottom. They were drowned at a short distance from the island; their companions witnessed the disaster. Accidents of this kind are not infrequent. If the seals and penguins about here could only speak, how many tragedies they could relate.
>
> At present there are about 1,000 miners scattered in the archipelago. Soon there will be double the number, for the summer is at hand. On the Atlantic coast there are 100 miners, who left Punta Arenas recently and brought horses to explore with greater facility the auriferous shore between Cape Espiritu Santo and Thetis, which is supposed to be as rich as, if not richer than, the beach already mentioned.

PETROLEUM.

I have for several years been announcing in my reports the discovery of petroleum in unlimited quantities in the territory of Mendoza and other provinces along the Cordilleras of the Andes, and I have even stated that it was already being used as fuel for locomotives on the Andine Railway. Mr. Hoskold, in his pamphlet, refers to this. For some reason, however, unknown to me, the railway company has given up its use. I may add that thus far no Argentine kerosene has been placed on this market for sale.

COAL.

As to coal, the promise of which has been so often repeated from the interior provinces, I have nothing satisfactory to communicate. We are ever just on the eve of being blessed with the intelligence that the Argentine Republic is to be no longer dependent upon Great Britain for her fuel; but yet the "black diamonds," except in questionable specimens, remain invisible to the naked eye. The latest discovery of coal comes to us from the southern part of the province of Mendoza, at a place called San Rafael; and Dr. Francesco Moreno, the director of the museum at La Plata, has published a pamphlet on the subject. He describes a specimen of the coal as follows:

> It was equal to the best coal found in France or England, and I was not long in finding the bed, which is about 8,250 feet over sea level. There are a dozen veins, from 4 inches to 2 feet thick, all running from east to west. I called it the Miter coal field. Next day, after much trouble in clearing away the snow, I examined other beds, called Eloisa and Roca, at an elevation of 10,560 feet, where I found coal veins 13 feet thick.
>
> According to analysis, this coal of San Rafael is not equal to Cardiff, but closely resembles Coventry or Marles; and Prof. Kyle has discovered that Mendoza coal contains vanadium, a chemical of high value in Europe.

Prof. Kyle, of the University of Buenos Ayres, above referred to, says "the result exceeds my expectations," and that "the ash possesses 32 per cent of vanadium."

TIMBER INDUSTRY.

While the upper provinces and territories of the Argentine Republic are an almost unbroken forest of primeval proportions, in which are to be found hundreds of varieties of hard woods susceptible of the very finest polish and presenting the most exquisite colorings, yet the country is almost devoid of the soft woods of commerce. There are pines both in Misiones and along the Cordilleras of Patagonia, but they are quite inaccessible to market; and there are also immense cedar forests, which are just now beginning to be exploited. At present, however, the only woods which reach Buenos Ayres or are shipped abroad are the hard woods of the Gran Chaco. Owing to their specific gravity it is impossible to float the logs down the Paraná River; but they are brought down in *chatas*, or flat-bottomed boats, or are loaded from the banks directly in sailing vessels bound to European ports. There is a growing demand for them both in German and French manufacturing centers, where they are used for cabinetwork or are sawed into veneering. The first movement toward protecting and disposing of these magnificent woods for the benefit of the Government was in 1875, when the national Congress passed a law prohibiting the felling of trees on the Government domain without first obtaining a permit and accounting to the treasury for a certain proportion of the proceeds. Since then the annual shipments to foreign markets have been as follows:

Year.	Export value.	Year.	Export value.
1875	$29,171	1884	$394,848
1876	10,541	1885	339,022
1877	57,090	1886	326,623
1878	14,943	1887	330,214
1879	58,793	1888	781,793
1880	36,403	1889	799,257
1881	272,613	1890	1,413,224
1882	222,358	1891	2,145,510
1883	257,887		

These returns only show the value of the woods sent abroad which were accounted for to the Government. Owing, however, to the immense stretches of unprotected shores along the territory of the Gran Chaco, there are abundant opportunities for securing cargoes without the knowledge of Government officials, to say nothing of any connivance with them; and there is a very general understanding that not a few vessels every year receive loads of valuable timber logs for delivery to European ports without any report of the same ever being made to the Government. Besides these exports there is a very large demand in this port for the quebracho, algaroba, ñandubay, and other varieties of Chaco wood used for beams, joists, sleepers, and other economic purposes. The timber resources of the Argentine Republic have, however, only commenced to be developed, and under proper protection and management they must in time be a source of great wealth to the country. Meanwhile, however, in the absence of soft woods, the demand upon the United States for pine lumber continues, as will be seen by reference to the tables of imports.

FISHING INDUSTRY.

It is hardly necessary to refer to the fishing industry of the Argentine Republic, since it can scarcely yet be said that there is such an industry. With immense rivers full of various kinds of excellent food fish and a seacoast of thousands of miles, along which are to be found all varieties of ocean fish, from whales to oysters, it is a fact that no advantage has yet been taken of these undeveloped resources. The only oysters eaten here are the miserable little lime-tasting bivalves from Rio de Janeiro, and the best varieties of fish are sent up from Montevideo. Concessions have time and again been asked from the Argentine Government for fishing permits along the Atlantic coast, but they are hedged around with so many formalities that they are practically the next thing to prohibitions.

MANUFACTURING INDUSTRY.

There is an industry, however, which seems to deserve special mention, and that is the manufacturing industry. Those who have not kept abreast of the development of the country may still suppose that the cattle *saladeros*, the sheep and mare boiling *grasarias*, and the meat-freezing and meat-preserving establishments are the extent of Argentine industries. It is true that the raising and killing of cattle and the shearing of sheep continue to be the great employments of the people, and that there are eight or ten slaughtering establishments in this vicinity and nineteen up the Paraná River, in some of which the Liebig meat extract is prepared; but it is a great mistake to suppose that this is all that the country produces. In spite of the fact that no coal has yet been discovered in quantities for mining, and that fuel here is comparatively expensive, there is nevertheless a well-defined manufacturing industry, which every year is showing additional development.

According to the recent report of the minister of the interior, there are now in the city of Buenos Ayres and the neighboring towns of Zárate, Campaña, Barracas, Quilmes, etc., no less than two hundred and ninety-six such establishments operated by steam and employing 8,500 men and 3,500 women and children. Among these industries he mentions establishments for the manufacture of vegetable oils, starch, mineral waters, asphalt, wagons and carriages, tram cars, railway cars, milling machinery, iron safes, hemp shoes, trunks, paints and dyes, varnishes, buttons, scales and balances, bags and sacks, candies and dulces, preserves, canned vegetables and fruits, chocolate, beer, alcohol, liqueurs, lime, mattresses, iron beds and furniture, lead pipe, counterpanes, cement, boxes, brooms and brushes, artificial fuel, boots and shoes, hair work, underwear and clothing, gloves, perfumery, cabinet and inlaid work, macaroni, candles, soaps, blank books, blankets, woolen fabrics, nails, screws, hats and caps, baskets, cigars and tobacco, etc.

There is a woolen factory in this city which employs 200 persons, a paper factory in Zárate which has 480 workmen, a boot and shoe factory here which employs 970 workmen, another which employs 100 workmen, a tannery which employs 90 workmen, a hat factory which employs 380 workmen, a match factory which employs 800 persons, a glass factory which employs 300 workmen, a hemp-shoe (*alpargata*) factory which employs 510 workmen, a shirt and ready-made clothing factory which employs 500 persons, a cigar factory which employs 400 persons, a wire and chain factory which employs 180 persons, a foundry for machinery which employs 150 workmen, an iron-furniture foundry which employs 120 workmen, a factory of hempen bags which employs 290 workmen, a button factory which employs 120 workmen, two fruit-packing establishments which employ 120 workmen, a paint and varnish factory which employs 60 workmen, a factory of stoneware which employs 80 workmen, a factory of North American chairs which employs 60 workmen, etc. I have no means of giving the output of these various establishments, but it must figure up to many millions of dollars in value.

I may further mention that there are three hundred tanning establishments in the Argentine Republic, which last year turned out 3,400,000 tanned hides and skins, representing a value of $14,400,000. There are seventy-three breweries and one hundred and twenty-four distilleries in this country which last year, according to the return of stamps, produced 7,918,000 liters of beer and 20,554,000 liters of alcohol. There is a sugar refinery at Rosario which last year turned out 15,965,000 kilograms of refined sugar and 420,000 liters of alcohol.

There are many other manufacturing establishments in the Argentine Republic which I might allude to, but the details would too greatly extend this report.

I do not suppose that, in the absence of coal or other cheap fuel, the Argentine Republic can ever aspire to be a great manufacturing country, but it is at least very apparent that the people are doing something in the way of home production and in diversifying the employments of the laboring classes. Should coal, however, be attainable here, without the expense of importing it from abroad, it is not to be questioned but that, with the wealth of raw materials which the country affords, the manufacturing industry would assume no insignificant proportions.

RAILWAYS.

While the general depression has had the effect of checking the extension of the railway mileage of the Argentine Republic, still the amount of work done during last year has been very considerable, not only in new branches to existing lines, but also in new roads. The President, in his message, reports that 1,933 kilometers were opened to traffic during 1891; so that there were at the end of that year no less than 12,281 kilometers in operation, classified as follows:

	Kilometers.
Owned by the nation	1,017
Guarantied by the nation	4,016
Owned by private companies	5,771
Owned by provinces	1,477
Total	12,281

The following is a comparison of the aggregate figures for the last three years:

Year.	Opened to traffic.	Capital.	Gross receipts.	Expenses.	Net profits.	Passengers carried.	Merchandise carried.
	Kilometers					*Number*.	*Tons*.
1889	8,113	$249,907,000	$35,250,907	$24,420,152	$12,103,676	11,103,986	6,643,381
1890	9,254	346,493,000	41,157,486	27,784,941	14,270,122	10,069,606	5,420,781
1891	12,281	384,500,000	57,435,000	39,260,000	18,175,000	10,820,000	4,690,000

The 12,281 kilometers of railway given above are the President's figures; but, according to the annual report of the national railway board for 1891, these figures are too large. This official report, which is supposed to be exact, puts the total length of railways open to traffic in the Republic at the end of that year at 11,700 kilometers, or 7,270 miles. Of this mileage, 4,507 miles belong to the 5-foot-6-inch gauge, 634 miles to the 4-foot-8½-inch gauge, and 2,153 miles to the 3-foot-4-inch gauge.

The following table shows the mileage and capital of the railways belonging to the 5-foot-6-inch gauge:

Railways.	Mileage.	Total capital.	Capital per mile.
Great Southern	934	$57,500,000	$61,500
Central Argentine	711	50,286,200	70,725
Buenos Ayres and Rosario	897	41,929,500	46,750
Buenos Ayres and Western	338	30,065,635	90,000
Argentine Great Western	319	19,350,000	60,650
Buenos Ayres and Pacific	425	16,585,700	39,000
Buenos Ayres and Ensenada	92	11,731,750	127,500
Villa Maria and Rufino	136	5,375,000	39,500
Southern Santa Fé and Cordoba	186	4,486,375	24,000
Western Santa Fé	130	3,968,250	30,500
Bahia Blanca and Northwestern	128	3,472,500	27,000
Villa Mercedes and Rioja	53	1,925,000	36,000
Andine	158	4,339,800	27,500

So that the capital value of the above roads—4,507 miles—is $250,000,000, giving an average capital cost of $55,650 per mile.

The following table shows the mileage and capital of the railways belonging to the 4-foot-8½-inch gauge:

Railways.	Mileage.	Total capital.	Capital per mile.
Entre Rios Central	378½	$16,380,000	$43,250
Northeast Argentine	150	7,290,000	48,700
East Argentine	99	5,211,750	52,500
First Entre Rios	6	152,600	25,500

The capital value of the above roads—633½ miles—is thus $29,035,000, or an average of $45,800 per mile.

The following table shows the mileage and capital of the railways belonging to the 3-foot-4-inch gauge:

Railways.	Mileage.	Total capital.	Capital per mile.
Central Cordoba (northern prolongation)	550	$20,830,830	$38,000
Province of Santa Fé	689	18,250,000	26,500
Northern State	248	14,000,000	56,500
Dean Funes and Chilecito	185	12,137,000	66,500
Northwestern Argentine	104	5,250,000	50,500
Central Cordoba	130	4,960,000	38,030
San Cristobal and Tucuman	106½	3,150,000	30,000
Transandine	57	2,711,900	47,500
Chumbicha and Catamarca	41	2,281,750	55,500
Chubut Central	43½	992,000	23,000

The capitalized cost of the above roads—2,154 miles—is about $85,000,000, or an average of $39,250 per mile.

In the comparative table heretofore given it will be observed that, notwithstanding the increase of 2,480 miles opened to traffic since 1889, the returns of 1891 show a decrease of 280,000 in the number of passengers and 2,000,000 tons in the amount of freight carried.

And it must be borne in mind that the gross receipts, expenses, and net profits are stated in paper currency; so that, if reduced to gold, the net profits of all the railways of the country would not reach to $4,850,000, or a little more than 1 per cent on the cost of construction. Indeed, of the twenty-seven lines of railway running in 1891, no fewer than thirteen were operated at a loss—owing, it may be claimed, to the depression of business; but it must be admitted that railways running across wide reaches of country almost devoid of population can not be regarded as profitable investments, and many of those in the northern provinces are built through a wilderness.

The railway, above all others in the Republic, in which not merely the people of the United States, but of the whole world, are most interested is that which is projected across the Andes to connect the Atlantic and Pacific. And it is gratifying to be able to say that, notwithstanding the check which the financial crisis has given to railway building, the construction of the line has been prosecuted during the last year. The last link between Mendoza and the Chilean boundary has been finished as far as Rio Blanco, a distance of 75 miles; and the gap of unfinished road is now only about 20 miles. So many contradictory reports have been printed in regard to this road and its ultimate completion that I reproduce the following, which has been ascertained from official sources:

> The Transandine Railway is divided into two sections—the Argentine, 108 miles in length, and the Chilean, 40 miles. The respective termini are Mendoza on the Argentine side, at an elevation of 3,376 feet above the sea, 650 miles from Buenos Ayres, and Santa Rosa, on the Chilean side, at an elevation of 2,739 feet, and 80 miles from Valparaiso. The total length of the Argentine and Chilean sections is 150 miles.
>
> The concessions were obtained in 1874 by Messrs. Clark, of Valparaiso and Buenos Ayres, who, after completing the construction of the line from Buenos Ayres to Mendoza, succeeded in raising the necessary capital for the Argentine portion of the Transandine road; and in October, 1886, they promoted the company known as the Buenos Ayres and Valparaiso Transandine Railway Company, and undertook to construct the line for the amount fixed by the concession. The work was commenced from Mendoza in January, 1887, and on June 6, 1891, the line was completed for traffic up to Rio Blanco, a distance of 75 miles; and, notwithstanding the financial crisis that has so seriously affected all Argentine enterprise, the construction of the line is making progress, and by the end of this year it will probably be finished up to Punta de las Vacas, 88 miles from Mendoza, and only 20 miles from the frontier of Chile—a distance that can easily be traversed by carriages over a good road that has been constructed. In the course of next year the locomotive will reach Puente del Inca, 99 miles, leaving only 9 miles of the Argentine section to be finished.
>
> On the Chilean side work was commenced at Santa Rosa on the 5th of April, 1887; but, on account of the financial crisis and the political troubles in Chile, the work was suspended in December, 1890. The rails now extend for 20 miles; but a great deal of work has been done beyond that point, and the materials for the whole line are on the ground. Complete mechanical installations for drilling the summit tunnel have been erected at a great cost. More than 3,000 meters of tunnel have been drilled by hand labor, about 11,000 meters remaining to be drilled. This, with the drilling plant now ready, should be completed in three or four years. The work is progressing from twenty-two different headings at the same time. It is expected that when the rails have reached the foot of the pass from both sides a large

passenger and cattle traffic will be carried on, which will attain considerable proportions when the line is completed, as the Andine provinces of the Argentine Republic will be able to carry on their import and export traffic by this route at a very much reduced cost.

The journey from Buenos Ayres to Valparaiso by sea takes about twelve days, and costs about £40, while by the railway it will take only two days, at a cost of less than £12, the total distance by rail being about 3,000 feet lower than the Oroya line in Peru and the Antofagasta and Bolivia line.

To make the line perfectly secure from any possible interruptions during the winter, a series of tunnels has been adopted instead of artificial snowsheds. The railway has a narrow gauge, the space between the rails being 1 meter. For a short distance on either side of the frontier it was found impossible, without very great expense, to develop the line sufficiently to obtain gradients that could be economically worked by adhesion, so it was decided to adopt the "Abt" system of rack rails. The locomotives have been so constructed that they can work by adhesion on the flatter gradients and by the rack where the gradients are steep. The greatest inclination on the line is 1 in 12½.

The railway is now so far completed that the Royal Mail Steamship Company are booking passengers through to Valparaiso. The line is open on the Argentine side for 77 miles to Rio Blanco. From there the company undertakes the transport of passengers and luggage during the summer months (November to March) across the Andes to the point of the Chilean Transandine Railway, where the rail route is resumed. The final accomplishment and completion of this great enterprise may be looked upon as certain, but it is impossible at present to name the time. It was originally intended to finish the line in five years' time; but, on account of obstacles to construction in the shape of floods and revolutions and the bad state of Argentine financial affairs, this was found to be impossible. The final completion of the line will depend, to a great extent, on the financial state of the Argentine Republic. The capital is found by English financiers, and the interest is guarantied by the Argentine Government. It depends on the ability of the latter to carry out their guaranty and, moreover, on the improvement of their credit whether the money will be forthcoming which is required to finish the line. The Argentine Government has just issued a decree authorizing the payment of the first guaranty account presented to them by the Buenos Ayres and Valparaiso Transandine Railway Company up to the 31st of December, 1891.

In regard to Government guaranties generally, it is understood that no payments are now being made, owing to the financial difficulties of the nation, though in some cases bonds of the *moritorio* character have been delivered. The total amount of guaranties paid by the Government in 1891 was $4,635,562 in gold, and the amount due thus far in the present year is about $5,500,000. The Government has already given notice that it will not be able to pay them, the revenues of the nation being indispensably required for other purposes. And yet there are, in addition to the above, twenty-three other lines for which the Government has granted concessions and agreed to pay a 5 per cent guaranty. The President says, "fortunately they are *en proyecto* yet."

It appears from the report of the minister of the interior that the concessions without guaranty which have been granted for new railways, most of which have never even been surveyed, comprise 5,075 kilometers, or 3,146 miles. In the present condition of the country, and considering the bad investments which Argentine railways at present appear to be, it is probable that many of these concessions will not be carried out, or at least that they will have to wait until better times.

PUBLIC WORKS.

The various public works projected by the Argentine Government have been in a great measure paralyzed during the last year; and their prosecution, except in a few instances, has been suspended for want of funds.

The port works, however, as a matter of pressing necessity, have not been stopped; and the completed portions begin to illustrate the extent of this magnificent enterprise. A few months ago dock No. 3 was formally opened to traffic, leaving to be completed only dock No. 4 and the north basin, on which there has already been a large amount of excavation and masonry accomplished. The amount expended for the year ending March 31, 1892, according to the report of the minister of the interior, was $1,841,592 in gold. The part of the port already completed is composed of the following works:

	Meters.
South basin mole	1,030
First dock mole	1,430
Second dock mole	1,420
Third dock mole	1,660
Total	5,540

There are now open to the public along these wharfs 12,195 square meters of cellars or underground deposits and 46,128 square meters of warehouses for the deposit of merchandise in general. Each one of the four deposits, three stories in height, has three hydraulic cranes capable of lifting 1½ tons each; and along the docks are forty-six movable cranes of the same capacity, two with a capacity to lift 5 tons each, and one with a capacity to lift 30 tons. There has already been laid along the port no less than 20 kilometers of railway track. These docks and wharfs are all connected with the city by streets very handsomely paved.

The Riachuelo Canal or channel is an extension into the La Plata River of a little stream called the Riachuelo, which has been dredged for nearly 3 miles from its mouth and wharfs constructed along its banks. The canal is not only the outlet for this little river, but also for the basin and docks of the city port. It has been dredged to the outer roads, the total amount of excavation up to date being about 12,000,000 cubic meters of mud and sand, while the total expense has been about $10,000,000; and yet there is general complaint among commercial men that, so far from the depth of water being 21 feet, as required by the law, it is still difficult at low water for vessels drawing not more than 17 feet to pass in and out. Of course, this greatly interferes with the usefulness of the port works, some lines of ocean steamers in consequence being compelled to make use of the port of La Plata, 30 miles south. Provision, however, has been made to deepen the channel and keep dredges employed to remove the deposits which are caused by the river current, and it is expected that in the course of another year this very essential adjunct to the city and Riachuelo ports will have a depth of water sufficient to pass the largest vessels.

A company has been at work for a year or two, under a concession from the National Government, in building a dike along the northern portion of the city, by the terms of which they were to have a large portion of the land thus reclaimed. But, owing to the crisis and failure to obtain money, the company, after having accomplished no inconsiderable portion of the work, has had to suspend operations; and it is probable that, as they have failed in their contract, the works will revert to the Government. Should it ever be finished, it will afford a magnificent boulevard along the river.

I have heretofore referred to the sand bar which makes across the La Plata River at the island of Martin Garcia and at low water renders it next to impossible for vessels, except of very light draft, to pass. This obstruction to the navigation of the upper rivers, by which whole fleets of ocean-going craft are sometimes detained for weeks, has for some time been claiming the attention of the Government. Last year the National Congress appropriated $200,000 to the object of deepening the channel, but it is a fact that at low tide there is still only 16 feet of water on the bar. The intention is now to deepen a new channel which has been discovered near the Uruguayan shore; and for this purpose two large dredges are at present at work there, though the Government of Uruguay has raised a point that the jurisdiction of the channel belongs to that Republic and not to the Argentine Republic. It is expected that the new channel will be ready for use in the course of six months.

Little has been done during the past year on the Rosario port works. One section has been completed, but I believe it has been discovered that the system is wrong and that other measures will have to be taken to save Rosario from being left with a sand bar directly along the city front. Port works have also been surveyed and projected for Concordia, on the Uruguay River, but for lack of money nothing has been done yet. A mole has also been under construction at Corrientes, but the work has been suspended, owing to the hard times. The same may be said in regard to new moles for the ports of San Nicolas and Concepcion del Uruguay.

INTERIOR NAVIGATION AND TRADE.

The river carrying trade of the Argentine Republic during the year 1891 has been somewhat affected by the depression of business, as regards the tonnage of both sailing vessels and steamers. The following table gives the aggregate movement, compared with that of the previous year:

Class of vessels.	Arrivals.		Departures.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
Sailing vessels	17,195	923,168	17,278	887,237	34,473	1,810,405
Steamers	5,675	1,572,174	5,632	1,511,668	11,307	3,083,842
Total	22,870	2,495,342	22,910	2,398,905	45,780	4,894,247
Total in 1890	22,494	3,324,849	24,089	2,878,600	46,583	6,203,449

The average tonnage of sailing vessels on the rivers in 1881 was 30 tons and of steamers 388 tons. The average tonnage of sailing vessels in 1891 was 52 tons and of steamers 272 tons. The reason of this reduction of the average tonnage of steamers is that, while there are many large and handsomely equipped steamers on the Paraná and Uruguay rivers, there have been lately constructed a number of smaller steamers, intended to trade in the smaller streams and *arroyos*, which are feeders to those rivers.

The steam traffic on the upper rivers has been for some time almost a monopoly. A few years ago a company organized in Scotland bought up all the different lines for the purpose of controlling the active river carrying trade. The public, supposing that only fair rates would be exacted, were rather pleased with the prospect of an improved service. With the coming of the crisis, however, came a great falling off in business, to compensate for which higher rates were charged. But even that did not save the company; the stockholders were sold out to the mortgage-holders, the parties who had organized the company, and they are now struggling, with a large fleet of vessels, to make it pay. Meanwhile other parties, seeing the situation, have during the last year put on quite a number of opposition steamers, with the result that rates for freight and passengers have experienced quite a reduction.

The Argentine river commerce shows a slight reduction in the figures compared with 1890. The total value in 1891, according to the returns of the statistical office, amounted to $94,064,131, of which $46,335,822 were of national products and $47,728,309 of imported merchandise.

The value of the shipments by river of national products from the more important upriver ports is given as follows:

Ports.	Value.	Ports.	Value.
Ajó	$251,372	Gualeguachú	$467,800
Baradero	344,789	Helvecia	325,747
Bella Vista	809,626	La Paz	1,776,832
Campaña	421,635	Paraná	1,535,865
Colon	460,519	Posadas	621,241
Concepcion del Uruguay	1,042,720	Reconquista	345,722
Concordia	719,887	Rosario	8,420,209
Corrientes	499,791	San Geronimo	429,956
Diamante	995,869	San Lorenzo	595.373
Empedrado	391,783	San Nicolas	358,520
Esquina	525,884	Santa Fé	4,400,789
Goya	633,972	Victoria	467,983
Gualeguay	1,322,410	Zárate	231,894

The quantity and value of the most important articles of native production transported on the rivers during 1891 will be seen from the following table:

Articles.	Quantity.	Value.
Bran........tons...	4,810	$81,784
Alcohol........liters...	1,398,623	209,793
Peas........tons...	16	830
Starch........do......	48	5,823
Hemp shoes........dozens...	20,361	42,758
Canary seed........tons...	24	1,674
Sugar........do......	3,926	628,206
Lime........hectoliters...	1,164,351	....
Charcoal........do......	3,770,022	3,770,022
Barley........tons...	57	1,452
Wooden sleepers........number...	172,405	517,215
Macaroni........tons...	405	81,054
Brooms........dozens...	2,273	4,773
Wooden beams........number...	310,268	40,335
Hard bread........tons...	556	50,039
Biscuit........do......	145	43,502
Flour........do......	51,718	4,137,478
Soap........do......	1,618	242,772
Wood........packages...	285,508,873	1,427,544
Linseed........tons...	11,879	593,962
Cedar wood........square meters...	1,148,924	919,139
Quebracho wood........do......	726,858	363,429
Corn:		
Shelled........tons...	60,591	1,272,416
In the ear........do......	1,433	17,197
Peanuts........do......	9,592	479,616
Fence posts, split........number...	2,439,011	975,604
Potatoes........tons...	26,756	1,337,835
Raisins........do......	100	21,428
Baled hay........do......	11,089	155,253
Beans........do......	290	17,454
Posts, unsplit........number...	692,818	484,973
Cheese........tons...	1,126	337,805
Quebracho logs........do......	32,304	646,083
Common salt........hectoliters...	1,093,956	678,253
Seeds........tons...	5,370	317,881
Hides, tanned........number...	98,175	981,750
Tobacco........tons...	850	127,585
Wheat........do......	256,016	15,361,029
Wine........liters...	754,695	135,845
Yerba tea........tons...	2,757	372,305
Cement........do......	7,165	75,241

These figures show no inconsiderable increase in most articles over those of the previous year. Of course, they do not include the direct shipments made by vessels which loaded in the rivers for foreign ports.

TRANSIT TRADE.

The transit trade of the Argentine Republic has been greatly reduced in its proportions within the last few years, and this in spite of the increased transit facilities which this country now affords. The following are the figures for 1891:

Country.	Egress.	Ingress.	Total.
Bolivia	$1,368	$940,174	$941,542
Brazil	142,559	44,977	187,536
Paraguay	124,248	43,830	168,078
Uruguay	224,227	54,285	278,512
Total	492,402	1,083,266	1,575,668

The following are the returns of the transit trade through the Argentine Republic for the last ten years:

Year.	Bolivia.	Brazil.	Paraguay.	Uruguay.
1882	$1,132,192	$1,335,834	$643,793	$1,955,848
1883	8,193,791	1,023,487	536,538	1,602,678
1884	7,583,793	1,757,740	709,727	563,592
1885	12,021,927	1,386,853	518,822	429,734
1886	7,588,229	1,245,645	727,879	1,582,020
1887	6,622,246	854,640	521,224	1,094,323
1888	6,003,423	140,046	738,265	500,787
1889	3,434,032	179,975	407,470	396,278
1890	826,475	117,635	297,556	453,814
1891	941,542	187,536	168,078	278,512

The Bolivian transit trade is effected through the Rosario custom-house, the ingress consisting of minerals en route to Europe and the egress consisting of European merchandise for consumption in Bolivia. The Brazilian transit trade is effected through the Concordia custom-house. The Paraguayan and Uruguayan transit trade is effected through the Buenos Ayres custom-house.

FOREIGN NAVIGATION.

The foreign carrying trade of the Argentine Republic for 1891 shows very perceptibly the effects of the crisis by the very marked reduction in the tonnage of both steamers and sailing vessels. The following table gives the aggregate number of arrivals and departures, compared with the previous year:

Class of vessels.	Arrivals.		Departures.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
Sailing vessels	3,436	697,519	2,643	621,088	6,079	1,318,607
Steamers	7,369	4,577,575	6,547	4,052,759	13,916	8,630,334
Total	10,805	5,275,094	9,190	4,673,847	19,995	9,948,941
Total in 1890	13,873	6,340,965	9,609	5,506,469	23,482	10,847,424
Decrease	3,068	1,065,871	419	832,622	3,487	898,483

The following tables were compiled from the returns of the national statistical office.

Table showing arrivals from and departures to each country in 1891.

Countries.	Arrivals.				Departures.			
	Sailing vessels.		Steamers.		Sailing vessels.		Steamers.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Germany	13	7,513	142	222,106	16	8,085	109	179,029
Antilles	3	1,087	......	......	93	54,801	......	......
Australia	......	......	......	......	3	3,019	......	......
Belgium	10	7,398	58	82,231	14	7,605	87	122,421
Brazil	180	2,148	263	97,682	336	73,305	270	26,606
Canada	9	5,903	......	......	2	1,319	......	......
Chile	2	242	2	2,917	47	39,235	3	5,556
United States	131	89,764	8	12,768	114	77,990	3	4,028
France	16	7,215	125	294,463	13	8,226	105	190,638
Italy	6	5,013	116	204,430	14	5,209	76	135,315
Mexico	......	......	......	......	1	394	......	......
Holland	......	......	......	......	1	1,066	1	2,054
Paraguay	169	14,349	1,512	747,659	154	19,937	1,334	688,804
Peru	......	......	......	......	2	1,128	......	......
Portugal	......	......	......	......	8	3,598	17	22,199
Great Britain	387	228,701	335	540,729	313	163,052	160	251,845
Sweden	6	2,846	......	......	......	......	......	......
Uruguay	2,510	274,694	4,777	2,338,631	1,458	127,786	4,362	2,333,320
Spain	36	23,432	22	26,725	9	3,596	12	20,765
All other countries	18	7,942	9	7,234	45	21,737	8	20,179
Total	3,496	697,517	7,369	4,577,575	2,643	621,088	6,547	4,052,759

Table showing arrivals and departures according to flag in 1891.

Flag.	Arrivals.				Departures.			
	Sailing vessels.		Steamers.		Sailing vessels.		Steamers.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
German	52	24,523	154	237,199	47	22,512	95	151,169
Austrian	20	12,274	......	......	25	13,624	......	......
Belgian	......	......	20	33,669	......	......	9	12,899
Brazilian	31	1,380	329	93,860	52	3,012	299	88,417
Danish	13	4,974	......	......	13	3,720	......	......
Spanish	63	19,387	20	33,480	52	15,627	17	31,885
French	7	2,668	135	304,775	7	4,517	115	232,097
Dutch	5	900	......	......	7	1,764	......	......
British	795	235,798	2,249	2,128,698	247	133,002	1,981	1,774,093
Italian	123	70,405	118	204,507	155	83,002	85	153,268
Argentine	1,491	120,364	3,377	1,222,793	1,135	120,329	3,079	1,253,540
American	41	23,878	......	......	35	20,550	......	......
Norwegian	240	126,565	......	......	274	152,639	......	......
Paraguayan	52	2,777	22	722	42	2,930	17	190
Russian	10	6,148	......	......	10	6,067	......	......
Swedish	27	12,290	5	687	30	13,195	7	2,790
Uruguayan	505	23,143	934	312,379	510	25,576	834	306,599
Not named	1	43	6	4,806	1	22	9	5,812
Total	3,496	697,517	7,369	4,577,575	2,643	621,088	6,547	4,052,759

Table showing arrivals and departures at each port.

Ports.	Arrivals.				Departures.			
	Sailing vessels.		Steamers.		Sailing vessels.		Steamers.	
	No.	Tons.	No.	Tons.	No.	Tons.	No.	Tons.
Bella Vista	...	...	281	125,416	...	...	287	137,791
Bahia Blanca	2	1,394	...	...	4	2,117	...	...
Buenos Ayres	1,952	481,852	1,885	1,626,472	1,085	339,241	1,288	1,107,504
Campaña	49	15,864	6	8,330	19	5,609	18	23,774
Colon	91	5,031	669	349,755	50	5,399	627	305,490
Concepcion del Uruguay	128	4,384	373	209,957	127	7,476	361	195,431
Concordia	202	7,931	786	380,246	218	10,449	744	356,395
Corrientes	47	1,642	287	142,613	55	3,008	236	118,022
Diamante	...	...	149	80,762	...	...	216	112,598
Empedrado	...	...	131	83,511	...	...	135	83,308
Esquína	...	...	301	153,503	...	...	189	102,199
Formosa	...	...	181	87,761	...	...	198	94,873
Goya	...	...	211	99,052	...	...	219	110,325
Gualeguay	21	2,757	...	...	26	4,654	...	...
Gualeguachú	109	8,038	547	215,200	99	9,011	539	269,086
La Paz	6	1,426	261	126,927	11	2,423	267	132,345
La Plata	412	73,347	52	36,903	312	54,881	63	64,146
Monte Caseros	28	326	31	2,035	31	406	8	480
Paraná	13	1,369	269	135,148	17	2,537	260	131,846
Paso de los Libres	31	232	...	...	59	300	...	...
Posadas	11	96	...	...	6	41	...	...
Rosario	230	62,503	538	395,947	321	140,125	484	402,567
San Nicolas	15	5,359	74	117,658	23	8,817	76	117,998
Santa Fé	23	9,161	34	35,208	20	6,247	8	6,295
Villa Constitucion	4	913	...	...	4	1,590	...	...
Zárate	5	2,293	14	24,815	4	1,823	14	18,538
All other ports	117	11,599	289	140,356	152	14,934	310	161,748
Total	3,496	697,517	7,369	4,577,575	2,643	621,088	6,547	4,052,759

It will be observed from the foregoing tables that there were eight arrivals of steamers from the United States, but that none of them carried the American flag. The number of arrivals of sailing vessels was 131, against 235 in 1890 and 592 in 1889. The arrivals of vessels under the American flag were 41, against 57 in 1890 and 207 in 1889.

FOREIGN COMMERCE.

The foreign commerce of the country for 1891 shows a very remarkable shrinkage compared with that of the previous year. The imports were only $67,207,280, being $75,037,023 less than in 1890; and the exports were $103,219,000, being $2,390,007 greater than in 1890. The exports, it will be seen, were $36,011,220 greater than the imports; and it is the first time in ten years that the balance of trade has been in favor of the country.

An official statement published by the Government shows that the importations since 1861 amounted to $1,942,433,051 and the exports to $1,591,207,512, the total balance of trade against the Argentine Republic in the last thirty-one years being no less than $351,225,539.

The following table shows the imports and exports since 1882:

Year.	Imports.	Exports.	Excess of imports.
1882	$61,246,045	$60,388,939	$857,106
1883	80,435,828	60,207,976	20,227,852
1884	94,056,144	68,029,836	26,026,308
1885	92,221,969	83,879,100	8,342,869
1886	95,408,745	69,834,841	25,573,904
1887	117,352,125	84,421,820	32,930,305
1888	128,412,110	100,111,903	28,300,207
1889	164,569,884	90,145,355	74,424,529
1890	142,240,812	100,818,993	41,421,819
1891	67,207,780	103,219,000	....

If this decrease for 1891 in the volume of imports is an index that the trade of the country is coming back to a normal condition, the outlook must be regarded as much more satisfactory than it has been for many years, especially when coupled with the fact that the exports meanwhile are exhibiting a very gratifying increase.

The following table, compiled from the returns of the national statistical office, shows the imports, exports, and total commerce of each custom-house in the country:

Table showing the commerce of each custom-house in 1891.

Custom-house.	Imports.	Exports.	Total.
Ajó	$89,819	$114,876	$204,695
Alvear	....	933	933
Bahia Blanca	443,611	2,105,502	2,549,113
Baradero	8,666	133,277	141,943
Barranqueras	132	2,222	2,354
Bella Vista	231,934	28,092	260,026
Buenos Ayres	47,010,594	64,429,408	111,440,002
Campaña	2,060,520	888,300	2,948,820
Chubut	17,517	....	17,517
Colon	93,808	1,256,994	1,350,802
Concepcion del Uruguay	37,023	316,644	353,667
Concordia	403,558	1,907,186	2,310,744
Corrientes	175,833	....	175,833
Diamante	....	199,859	199,859
Empedrado	139,701	44,233	183,934
Esquina	532	8,249	8,781
Formosa	1,855	6,271	8,126
Goya	18,405	35,106	53,511
Gualeguay	35,294	405,059	440,353
Gualeguaychú	112,105	1,018,546	1,130,651
Helvecia	5,807	331,564	337,371
Jujuy	149,580	244,524	394,104
La Paz	52,524	475,902	528,426
La Plata	2,077,914	1,439,366	3,517,280
Mendoza	22,845	1,323,131	1,345,976
Monte Caseros	4,792	167,292	171,984
Oran	3,368	5,405	8,773
Paraná	133,212	451,306	584,518
Paso de los Libres	6,487	257,535	264,022
Reconquista	460	....	460
Rosario	7,646,843	16,898,450	24,545,293

Table showing the commerce of each custom-house in 1891—Continued.

Custom-house.	Imports.	Exports.	Total.
Salta	$26,872	$222,309	$249,181
Santa Fé	5,367,550	2,070,835	7,438,385
San Geronimo		2,410	2,410
San Juan	2,618	1,031,392	1,034,010
San Lorenzo		1,320,047	1,320,047
San Nicolas	182,921	2,632,150	2,815,071
San Pedro	14,222	362,032	376,254
Santo Tomé	2,996	263,620	266,616
Trinchera de San José	64,104	3,255	67,359
Victoria	540		540
Villa Constitucion	431,786	46,934	478,720
Zárate	124,432	768,784	893,217
Total	67,207,780	103,219,000	170,426,780

The imports of Buenos Ayres show a decrease of $56,165,367 compared with those of 1890, while the exports for the same time show an increase of $6,687,066. Rosario, the second port in the country, shows a decrease of $7,993,799 in its imports compared with 1890, while its exports remain about the same. The smaller ports exhibit corresponding reductions in imports and increase in exports.

The following table, also compiled from the returns of the national statistical office, gives the imports, exports, and total commerce for 1891 of each country trading with the Argentine Republic:

Countries.	Imports.	Exports.	Total.
Germany	$6,206,572	$11,621,898	$17,828,470
Antilles	13,034	1,340,660	1,353,694
Austria	437	11,126	11,563
Belgium	6,374,868	18,130,787	24,505,655
Bolivia	149,485	463,764	613,249
Brazil	1,497,434	10,513,207	12,010,641
Chile	15,804	2,374,343	2,390,147
Spain	1,567,984	1,295,535	2,863,519
United States	3,445,904	4,214,502	7,660,406
France	7,925,296	24,142,260	32,067,556
Italy	4,205,841	3,324,103	7,529,944
Holland	119,251	39,335	158,586
Paraguay	1,483,914	463,459	1,947,373
Portugal	15,522	17,119	32,641
Great Britain	28,312,410	16,798,212	45,110,622
Norway and Sweden	3,440		3,440
Uruguay	2,574,498	4,518,752	7,093,250
Countries not designated	3,296,086	3,949,938	7,246,024
Total	67,207,780	103,219,000	170,426,780

From a comparison of these returns with those of 1890, it appears that there is scarcely a country whose imports to the Argentine Republic do not show a decrease. Those from Great Britain show a falling off of $29,504,100; those from France, $11,950,581; those from Germany, $6,094,900; those from Belgium, $4,611,842; those from the United States, $5,855,637.

The exports to Great Britain are less by $2,300,833 than they were in 1890. The exports to France are $2,541,058 less than they were in 1890. The exports to Germany show no material change. The exports to Belgium are $6,127,701 greater than in 1890. The exports to the United States are $1,852,456 less than in the previous year.

The total trade of Great Britain with the Argentine Republic for 1891 is $32,104,473 less than it was in 1890. Even so it occupies the first place in the category by over $12,000,000 greater than France, the total trade of which latter country is $14,491,639 less than in 1890. The total trade of Germany with this country is $6,039,442 less than it was in 1890, that of Belgium is $1,515,859 greater, and that of the United States is $7,708,093 less—a falling off of a little more than one-half.

A corresponding reduction is seen in the volume of trade with the other countries dealing with the Argentine Republic, except Brazil, which shows an increase of $213,512 over the previous year.

In the following tables, which I have translated and compiled from the returns made to the national statistical office, will be found the amount and value of all articles imported into and exported from the Argentine Republic during the year 1891:

Table showing the imports into the Argentine Republic in 1891.

Articles.		Quantity.	Official value.
Live stock:			
Asses	number	8	$630
Horses and mares	do	121	83,394
Goats	do	8	101
Hogs	do	52	2,152
Sheep	do	1,909	46,900
Cattle	do	103	17,400
Total			150,594
Comestibles:			
Olive oil	kilograms	2,742,676	905,088
Olives	do	55,080	8,261
Starch	do	334,725	64,999
Rice	do	11,836,362	946,909
Saffron	do	2,337	58,425
Sugar—			
Refined	do	11,198,912	2,127,785
All other classes	do	1,636,721	212,773
Codfish	do	353,388	59,817
Cocoa	do	109,030	21,805
Coffee	do	1,864,605	530,946
Cinnamon	do	12,386	3,736
Meats not otherwise classified	do	23,503	16,420
Barley	do	445,458	16,478
Chocolate	do	13,556	13,556
Coca	do	44,624	31,238
Confectionery	do	44,776	26,292
Spices and condiments not otherwise classified	do	590,447	149,424
Farina	do	1,871,628	93,982
Fecula	do	25,462	6,541
Macaroni	do	30,028	6,026

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.	Quantity.	Official value.
Comestibles—Continued.		
Fruits—		
Fresh	...	$71,520
Dried and preserved...kilograms	1,102,435	111,773
Flour...do	29,346	6,680
Hams...do	41,790	22,566
Vegetables, dried and preserved, not otherwise classified...do	999,949	89,473
Corn...do	900	55
Butter...do	66	34
Lard...do	58,883	18,253
Honey...do	1,765	265
Bread and crackers...do	8,927	2,660
Figs...do	146,341	22,075
Raisins...do	293,860	58,495
Fish, preserved and canned...do	190,827	61,799
Cheese...do	154,452	76,212
Salt...do	508,823	25,441
Sausages...do	253	203
Tea...do	264,206	264,206
Bacon...do	3,010	1,505
Wheat...do	120,403	4,866
Yerba—		
Paraguayan...do	7,563,336	1,058,866
Brazilian...do	10,262,255	1,026,226
Total	...	8,223,256
Liquors:		
Mineral waters, in bottles...dozens	19,707	33,140
Absinthe—		
In bottles...do	290	1,450
In casks...liters	9,261	3,611
Alcohol—		
In bottles...dozens	3,374	16,204
In casks...liters	59,980	11,121
Bitters—		
In bottles...dozens	17,092	102,556
In casks...liters	3,494	1,398
Cafia, in casks...do	3,330	499
Beer—		
In casks...do	3,290	559
In bottles...dozens	17,968	41,864
Chartreuse, in bottles...do	286	4,290
Cider—		
In bottles...do	26	54
In casks...liters	290	104
Brandy—		
In casks...do	33,707	12,134
In bottles...dozens	5,775	28,875
Gin—		
In bottles...do	1,668	5,004
In casks...liters	38,623	5,849
Sirups and cordials	...	4,849
Rum—		
In bottles...dozens	133	798
In casks...liters	7,596	3,038
Wines—		
In bottles:		
Champagne...dozens	1,464	11,712
Sherry...do	964	7,712
Port...do	2,097	15,976

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.		Quantity.	Official value.
Liquors—Continued.			
Wines—Continued.			
In bottles—Continued.			
Bordeaux	dozens	697	$5,576
Vermouth	do	13,783	68,915
All other kinds	do	2,978	14,591
In casks:			
Sherry	liters	18,974	9,867
Port	do	22,677	11,792
Bordeaux	do	9,236,143	923,614
Vermouth	do	7,238	2,171
All other kinds	do	23,120,989	2,313,946
Vinegar—			
In casks	do	10,179	712
In bottles	dozens	276	414
Whisky—			
In bottles	do	3,792	15,927
In casks	liters	17,188	6,876
Total			3,687,198
Tobacco:			
Cigars—			
Habana	kilograms	3,487	21,744
Other classes	do	32,220	42,048
Cigarettes	do	1,258	2,440
Leaf tobacco—			
Habana	do	13,690	8,190
Other classes	do	3,195,986	372,493
Fine cut, Habana	do	12,026	9,621
Snuff	do	772	926
Total			457,462
Spun and woven goods:			
Tarpaulin			90
Mats	dozens	1,460	949
Carpet matting	meters	20,101	12,099
Frieze	kilograms	17,266	6,920
Carpeting	do	156,480	170,567
Raw cotton	do	64,658	28,343
Pack cloth	do	9,998,069	1,997,626
Bramant	do	1,135,060	908,048
Baize	do	7,556	11,184
Sailcloth	do	199,068	183,728
Cassimeres—			
Wool	do	442,953	1,063,086
Mixed	do	586,130	586,130
Ribbon—			
Silk	do	2,858	22,553
Other classes	do	34,519	64,013
Cord—			
Silk	do	256	1,831
Other classes	do	1,274	3,573
Edging and inserting	do	29,694	127,137
Tow cloth	do	88,696	16,108
Blankets—			
Woolen	do	3,352	8,381
Other classes	do	121,422	151,339
Flannels—			
Woolen	do	68,423	191,586
Other classes	do	4,961	9,922

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.	Quantity.	Official value.
Spun and woven goods—Continued.		
Thread—		
Pack ... kilograms ...	87,360	$33,195
Tailors' ... do ...	203,295	36,593
Common, in spools ... dozens ...	1,036,956	186,812
Silk ... kilograms ...	3,281	49,041
Yarn ... do ...	122,532	140,311
Impermeable cloth ... do ...	99,514	44,836
Rope ... do ...	598,064	110,957
Canvas ... do ...	499,235	256,822
Lamp wicks ... do ...	32,004	20,083
Billiard cloth ... do ...	1,172	4,690
Houseline and twine ... do ...	1,279,291	495,457
Hemp ... do ...	185,418	12,509
Soles for alpargata shoes ... do ...	245,259	73,578
Prunella cloth ... do ...	3,831	6,639
Felt ... do ...	5,422	37,466
Lace—		
Gold and silver ...	...	7,732
Wool, silk, and cotton ... kilograms ...	2,980	11,002
Cotton goods ... do ...	5,637,935	4,644,806
Linen goods ... do ...	137,731	154,380
Woolen goods ... do ...	223,475	572,325
Mixed goods ... do ...	184,288	510,698
Silk goods ... do ...	13,128	231,260
Jute goods ... do ...	372,967	52,677
Velvet, silk ... do ...	420	8,400
Gutta-percha goods ... do ...	9,240	22,044
Chintz and calicoes ... do ...	1,566,879	1,566,879
Total ...	...	14,856,376
Clothing:		
Shirts ... dozens ...	2,029	24,955
Chemises ... do ...	80	1,749
Undershirts—		
Silk ... kilograms ...	213	5,325
Other classes ... do ...	93,961	159,240
Do ... dozens ...	180	1,706
Drawers—		
Silk ... kilograms ...	4	100
Other classes ... do ...	2,157	4,635
Do ... dozens ...	217	2,035
Cravats ... do ...	3,802	12,034
Dressing gowns, etc ... do ...	1,354	10,906
Collars and cuffs ... do ...	12,352	19,836
Corsets ... do ...	1,897	14,431
Hats and bonnets ... do ...	1,270	5,426
Gloves, other than kid ... kilograms ...	1,321	8,980
Stockings—		
Silk ... do ...	171	2,736
Other classes ... do ...	426,020	685,600
Handkerchiefs—		
Silk ... do ...	8,894	177,880
Other classes ... do ...	193,848	306,968
Hats—		
Soft ... dozens ...	5,855	29,771
Straw ... do ...	3,619	10,602
Silk ... do ...	8	312
Felt ... dozens ...	6,401	68,681
Other classes ... do ...	3,430	20,407

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.	Quantity.	Official value.
Clothing—Continued.		
Towels ... kilograms	22,870	$36,934
Ready-made goods for men	....	281,481
Umbrellas and parasols ... number	26,843	22,915
Various ready-made articles:		
Cotton goods	....	121,961
Thread goods	....	1,721
Linen goods	....	37,496
Woolen goods	....	73,909
Mixed goods	....	96,588
Silk goods	....	19,372
All other classes	....	66,729
Total	....	2,333,421
Drugs and chemicals:		
Acids—		
Sulphuric ... kilograms	341,638	17,083
Muriatic ... do	11,271	1,373
Nitric ... do	11,933	2,765
Other classes	....	75,965
Oils—		
Linseed ... kilograms	383,688	83,611
Palm ... do	104,890	20,979
Other classes	....	145,709
White lead ... kilograms	19,399	3,880
Alcohol ... liters	80	160
Tar ... kilograms	56,844	2,892
Alum ... do	24,242	1,359
Ammonia, liquid ... do	61,118	19,906
Indigo ... do	1,100	1,690
Sulphur ... do	81,942	2,190
Spirits of turpentine ... do	318,021	41,344
Varnish ... do	51,185	40,951
Bicarbonate of potassium ... do	679	340
Bicarbonate of soda ... do	332,689	12,873
Benzine ... do	46,193	7,959
Bitumen ... do	79,997	21,602
Borax ... do	56,447	13,986
Chlorate of potassium ... do	15,986	6,565
Chlorate of lime ... do	67,246	3,362
Carbonate of magnesia ... do	3,425	1,378
Carbonate of potassium ... do	96,373	14,458
Carbonate of soda ... do	130,437	8,314
Glue ... do	33,958	6,022
Paints—		
In powder ... do	1,231,356	102,750
Prepared ... do	1,162,648	111,651
Fireworks ... do	41,500	14,526
Dextrine ... do	5,918	1,183
Stearin ... do	64,608	19,381
Essences	....	27,303
Specific for cure of sheep scab	....	337,852
Glucose ... kilograms	67,524	5,401
Phosphorus ... do	6,586	6,574
Gelatin ... do	14,319	10,126
Gums ... do	64,235	25,531
Glycerin ... do	23,925	7,940
Iodide of potassium ... do	2,189	10,945
Malt ... do	2,047,998	204,800
Patent medicines	....	100,160

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.		Quantity.	Official value.
Drugs and chemicals—Continued.			
Soap—			
Common	kilograms	45,159	$11,670
Perfumed	do	29,353	13,653
Nitrate of potassium	do	76,263	8,867
Nitrate of soda	do	30,650	920
Perfumery			109,124
Resin	kilograms	2,482,638	62,058
Potash	do	826	126
Powder and other explosives	do	34,272	10,452
Pharmaceutical products			132,668
Chemical products			99,697
Chloride of soda	kilograms	512,640	317,820
Calcined soda	do	1,854,925	55,646
Caustic soda	do	195,830	9,792
Sulphate of iron	do	2,291	275
Sulphate of magnesia	do	9,572	957
Sulphate of lime	do	262,031	9,059
Sulphate of quinine	do	220	7,700
Ink—			
Printing and lithographing	do	47,349	11,959
Writing	do	64,149	6,414
Turpentine	do	416	42
Vaseline	do	3,603	1,803
Total			2,405,485
Lumber and wooden articles:			
Pine	square meters	4,051,878	1,694,443
Walnut	do	28,492	28,492
Oak	do	20,473	16,379
Cedar	do	76,097	26,181
Mahogany	do	790	1,343
Quebracho	do	61,509	12,302
Other kinds of lumber	do	244,852	53,073
Trunks and boxes	number	365,218	50,242
Carriages and wagons	do	41	15,766
Barrels and casks, empty	do	37,879	74,018
Musical instruments of wood			22,297
Launches and boats	number	27	35,218
Furniture			199,990
Pianos	number	105	19,385
Canes	dozens	516	2,246
Other articles of wood			109,072
Total			2,360,447
Paper and paper manufactures:			
Paper—			
Writing	kilograms	172,857	52,879
Drawing	do	3,060	1,531
Printing	do	2,325,458	604,616
Wall	do	113,188	34,687
Wrapping	do	321,022	72,688
Binding	do	8,169	4,531
Cigarette	do	222,826	189,400
Blotting	do	5,497	2,198
Tissue	do	539	1,403
Silk	do	33,097	13,239
Albums	dozens	99	1,104
Playing cards	gross	83	1,245
Cardboard	kilograms	466,955	73,616

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.	Quantity.	Official value.
Paper and paper manufactures—Continued.		
Papier-maché articles		$26,553
Other articles of paper		68,601
Books—		
Blank .... kilograms	81,135	58,980
Printed .... do	259,616	259,616
Music, printed .... do	7,481	5,984
Other printed matter .... do	72,209	76,403
Polygraphic materials		25,682
Total		1,574,956
Leather and leather manufactures:		
Boots and shoes .... dozens	10,115	59,291
Pocketbooks, cigar cases, etc .... do	3,668	7,445
Valises and traveling bags .... number	308	1,289
Saddles .... do	227	1,928
Gloves .... kilograms	1,126	20,641
Harness		12,152
Other articles of leather		23,120
Hides and skins—		
Raw		12,606
Dressed		6,732
Sole leather		291,069
Total		426,293
Iron and iron manufactures:		
Steel, unmanufactured .... kilograms	272,267	24,897
Anchors .... do	18,740	1,874
Arms, munitions, etc		177,842
Wire—		
Fencing .... kilograms	21,846,753	1,158,577
Other classes .... do	958,010	100,935
Needles .... thousands	31,837	24,171
Kitchen utensils		153,654
Nails .... kilograms	509,914	85,678
Chain .... do	126,081	15,101
Safes .... do	30,329	6,664
Piping .... do	1,796,216	136,165
Stoves and stovepipes .... do	15,906	1,921
Cutlery		168,450
Springs and axles, carriage and wagon .... kilograms	264,035	53,667
Hoops .... do	1,420,819	56,557
Ornaments		99,712
Unmanufactured .... kilograms	12,363,077	494,079
Galvanized .... do	2,097,732	178,301
Tools and implements		51,960
Furniture		1,688
Pens .... gross	38,715	7,742
Girders and columns .... kilograms	4,375,652	175,105
Plows .... number	12,102	82,880
Corn-shellers .... do	236	2,475
Mowers .... kilograms	9,582	4,974
Rakes .... do	16,338	7,040
Plowshares .... do	136,251	17,932
Planters .... number	29	920
Harvesters .... do	1,382	294,894
Thrashers .... do	47	60,185
Shovels, spades, and picks .... kilograms	150,164	34,695
All other agricultural machinery and tools		25,076
Pumps .... number	789	8,662

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.	Quantity.	Official value.
Iron and iron manufactures—Continued.		
Sewing machines ... kilograms	3,248	$49,299
Presses (except printing and lithographing) ... do	13,099	2,472
Various articles of machinery		494,766
Other manufactured articles of iron		286,410
Total		4,517,420
Materials for various works:		
Railways		16,047,485
Gas		21,811
Mining		12,083
Electric lighting		58,828
Sugar-refining		3,826
Sewerage		591,190
Port works		1,011,350
Tramways		117,458
Telegraph		9,232
Telephone		3,655
Waterworks		4,178
Total		17,881,096
Metals and their manufactures:		
Jewelry		60,974
Fixtures for gas and electric light		28,047
Quicksilver ... kilograms	1,153	1,153
Bronze in powder ... do	3,133	9,399
Copper and bronze—		
Unmanufactured ... do	39,363	16,531
Manufactured		51,241
Tin composition—		
Unmanufactured ... kilograms	36,885	15,492
Manufactured		234
Scientific instruments		18,580
Tin—		
Unmanufactured ... kilograms	1,398,298	114,584
Manufactured		17,482
Metallic belting		96,748
Gold leaf ... thousands	91	4,095
Lead—		
Unmanufactured ... kilograms	61,614	5,789
Manufactured		71,857
Silver, in bars ... kilograms	2,510	100,400
Watches—		
Gold ... number	1,057	26,575
Of other metals ... do	12,887	47,232
Clocks ... do	6,523	10,120
Weights and scales ... do	4,488	11,543
Printing type ... kilograms	31,748	16,508
Zinc—		
Unmanufactured ... do	963,996	85,915
Manufactured		1,063
Other metals, manufactured		33,289
Total		844,551
Glass and stone ware and ceramic products:		
Tiles—		
Flooring ... thousands	2,425	47,258
Paving ... do	90	2,491
Glass bottles ... dozens	97,186	29,427
Lime ... hectoliters	2,316	2,085

Table showing the imports into the Argentine Republic in 1891—Continued.

Articles.	Quantity.	Official value.
Glass and stone ware and ceramic products—Continued.		
Crystals for spectacles and watches		$209
Glassware in general		94,154
Glass and porcelain lamps		58,697
Bricks … thousands	398	20,663
Stoneware		89,038
Marble and alabaster … square meters	20,660	50,976
Marble slabs for tables, etc … do	222	522
Marble works of art		12,532
Mosaics … kilograms	665,873	37,524
Terra cotta works of art		4,098
Stones for lithographing … kilograms	5,841	584
Grindstones … do	322,013	8,637
Building stone		188,972
Slate roofing … square meters	4,356	1,742
Porcelain ware in general		82,724
Roofing tiles … thousands	791	39,550
Cement … kilograms	18,794,160	380,710
Glass and crystal … square meters	189,920	86,382
Mirrors … do	55,542	50,771
Total		1,202,952
Combustibles, etc.:		
Candles—		
Stearin … kilograms	72,927	21,878
Other kinds … do	2,349	2,644
Nut coal … do	250,680,989	3,326,809
Coke … do	2,982,452	50,694
Matches—		
Wax … do	422	357
Wooden … do	87,431	43,716
Kerosene … liters	10,354,222	517,720
Total		4,143,808
Miscellaneous articles:		
Fancy articles		116,613
Buttons … gross	130,448	66,338
Cork … kilograms	168,841	46,990
Sponges … do	1,161	6,836
Workboxes, etc … dozens	428	1,156
Gutta-percha goods		36,133
Toys		69,406
Pencils … gross	9,002	8,075
Hops … kilograms	43,868	21,874
Church ornaments		64,579
Pichua … kilograms	49,162	34,414
Paintings		6,774
Straw goods		44,423
Live plants		24,868
Leeches … thousands	18	270
Seeds … kilograms	1,211,483	99,219
Apothecary utensils		31,036
Office materials		12,808
Ship stores		14,962
Various unenumerated articles		1,447,696
Total		2,142,465
Grand total		67,207,780

Table showing the exports from the Argentine Republic in 1891.

Articles.	Quantity.	Official value.
Animals and animal products:		
Asses...number	6,793	$67,930
Horses and mares...do	10,703	353,714
Goats...do	6	100
Hogs...do	915	20,040
Sheep...do	114,691	387,545
Mules...do	14,703	410,794
Cattle...do	171,105	3,997,207
Cattle horns...kilograms	2,428,008	143,932
Frozen sheep carcasses...do	23,278,084	1,862,247
Hair...do	2,341,177	936,470
Skins—		
Goat...do	963,231	676,329
Kid...do	382,139	687,851
Sheep...do	24,169,950	4,833,991
Hides—		
Ox and cow:		
Dry...number	2,678,905	5,049,556
Salted...do	1,262,502	3,782,143
Mare:		
Dry...do	97,517	146,275
Salted...do	250,685	908,912
Tallow...kilograms	8,800	572
Wool, unwashed...do	138,605,838	36,037,518
Tongues, salted and preserved...do	784,416	195,753
Jerked beef...do	39,635,035	3,566,854
Frozen beef carcasses...do	73,769	5,902
Various frozen meats...do	390,134	31,211
Total		64,102,909
Agricultural products:		
Canary seed...kilograms	87,320	6,112
Barley...do	137,422	3,436
Linseed...do	10,438	4,696
Fresh fruits		33,689
Flax...kilograms	12,213,303	732,798
Corn...do	65,908,903	1,384,088
Peanuts...do	631,188	31,560
Honey...do	16,830	3,030
Potatoes...do	2,796,746	139,836
Raisins...do	136,963	41,089
Hay...do	30,003,990	420,058
Beans...do	1,750	105
Bulbs...do	105,958	6,357
Seeds...do	39,022	1,951
Leaf tobacco...do	5,390	809
Wheat...do	395,555,180	23,733,312
Total		26,542,926
Industrial products:		
Oil—		
Animal...kilograms	71,754	8,611
Linseed...do	634,985	95,247
Turnip...do	197,447	29,617
Alcohol...liters	44,120	6,618
Stuffed birds...kilograms	6,107	488
Sugar...do	9,172	1,459
Canned meats...do	2,876,955	258,926
Canned soups...do	30,913	7,728
Specific for curing sheep scab		12,556

Table showing the exports from the Argentine Republic in 1891—Continued.

Articles.		Quantity.	Official value.
Industrial products—Continued.			
Extract of beef	kilograms	294,727	$389,454
Macaroni	do	32,020	6,408
Biscuits and crackers	do	2,200	298
Glycerin	do	127,534	51,014
Flour	do	7,015,388	361,230
Meal flour	do	248,465	62,116
Ice	do	50,000	1,000
Butter	do	1,320	660
Pepsin	do	12,146	28,219
Cheese	do	112,762	33,827
Tallow and grease	do	20,725,111	2,391,388
Sémola	do	10,250	1,230
Soles for shoes	number	27,830	278,300
Wine, native	liters	79,819	14,367
Total			4,229,661
Products of the forest:			
Vegetable carbon	hectoliters	299,489	299,489
Cedar	square meters	91,031	72,825
Railroad ties	number	57,945	173,835
Ñandubay posts	do	385,654	167,053
Cord wood			90,336
Various cabinet woods			96,344
Quebracho—			
Logs	number	30,760,515	615,209
Timber	square meters	1,260,839	630,429
Total			2,145,520
Mineral products:			
Auriferous sand	kilograms	45,495	7,734
Bismuth	do	485,223	27,621
Borax	do	127,887	53,494
Lime	hectoliters	27,092	20,319
Copper, in bars	kilograms	90,791	36,316
Tin	do	32,868	16,434
Silver metal	do	1,334	13,340
Copper ore	do	363,982	98,275
Silver ore	do	291,616	95,807
Lead—			
Ore	do	988,713	79,096
Unmanufactured	do	153,668	15,367
Silver bullion	do	21,103	844,120
Salt	hectoliters	73,229	47,400
Total			1,355,323
Products of the chase:			
Carpincho skins	number	56,932	56,932
Nutria skins	kilograms	852,749	682,199
Various skins			66,997
Ostrich feathers	kilograms	52,028	52,028
Total			858,156
Residuum, animal and vegetable:			
Bran	kilograms	6,525,123	120,929
Bone ash	do	18,065,573	289,050
Cracklings	do	325,944	14,668
Animal claws	do	1,741,684	43,542
Guano	do	198,055	6,339
Bones	do	39,021,413	584,320

Table showing the exports from the Argentine Republic in 1891—Continued.

Articles.	Quantity.	Official value.
Residuum, animal and vegetable—Continued.		
Pezuñas ....kilograms...	353,582	$5,304
Dry blood........do......	648,487	32,455
Seed cakes........do......	2,498,541	378,781
Tripes—		
Salted........do......	374,837	18,742
Dry ....do......	60,634	2,425
Total	....	1,486,555
Miscellaneous articles:		
Old iron........kilograms...	630,620	15,765
Live plants........	....	3,796
Old sails........kilograms...	317,353	1,905
Various unenumerated articles........	....	2,476,504
Total	....	2,497,970
Grand total........	....	103,219,000

IMPROVED CONDITION OF ARGENTINE TRADE.

There are two things about the foregoing tables which emit several rays of hope that the foreign trade of the Argentine Republic, owing to the stern discipline which the crisis has administered, is at last approaching a sound and substantial basis. The first of these is that the imports, from the reckless trading of recent years, have come down to normal figures; and the second is that the balance of trade is very handsomely in favor of the Argentine Republic. If it was this overtrading—trading beyond the resources of the country and beyond the legitimate resources of the people to meet—which in great part brought on the general collapse of three years ago, it stands to reason that, by retracing its steps back to the point of departure, by curtailing expenses for foreign gewgaws and gimcracks, and by keeping the imports down to the line of strict economy, the country will in due time find its foreign trade in a safe and satisfactory condition, and especially so if the exports meanwhile continue to increase in the manner in which they now appear to be doing. When we consider that the imports in 1891 were only $67,207,780, against $142,240,812 in 1890, thus showing a decrease of $75,033,032 in the one year—greater, indeed, than the total amount of imports in 1891—there is great reason for the belief that the Argentines at last understand the situation and intend to profit by their dearly bought experience. The gratifying decrease in the imports can be better appreciated by studying it in its details.

The following table gives a comparison of the imports in each department of trade for the years 1890 and 1891:

Class of imports.	1890.	1891.	Decrease.
Live animals	$400,516	$150,594	$249,922
Alimentary substances	16,411,458	8,223,256	8,188,202
Liquors	12,790,340	3,687,198	9,103,142
Tobacco	2,554,017	457,462	2,096,555
Woven goods	23,491,363	14,856,376	8,634,987
Ready-made clothing and confections	6,533,603	2,333,421	4,200,182
Drugs and medicines	3,875,542	2,405,485	1,470,057
Lumber, furniture, etc	7,399,412	2,360,447	5,038,665
Paper, etc	3,628,598	1,574,956	2,053,642
Leather, boots, and shoes	1,704,709	426,293	1,278,416
Hardware, etc	9,566,752	4,517,420	5,049,332
Materials for railways, etc	36,273,503	17,881,096	18,392,407
Tin, brass, and other metallic wares	2,269,662	844,551	1,425,111
Earthen, glass, and stone wares	4,135,523	1,202,952	2,932,571
Combustibles, etc	6,250,011	4,143,808	2,106,203
Various manufactured articles	4,836,244	2,127,503	2,708,741
Ship's stores, etc	119,559	14,962	104,597
Total	142,240,812	67,207,780	75,033,032

It will be seen that the decrease of importations has been general in every branch of trade. There is no line of goods which has not been more or less affected by the crisis and which has not suffered from the stringency of the money market. The Argentines themselves are surprised to discover how many things they could do without. For instance, the "live animals" above stand in great part for fast horses from England, France, and Russia, which for the present have quite lost their market here; "alimentary substances" stand for a thousand items of fancy foods and condiments, which in great part the country could just as well do without and which have been reduced 50 per cent. Liquors of foreign brands have, to the extent of 75 per cent, been replaced by better beers, ales, and wines made here in the country; while the tobaccos, which heretofore were imported under the name of Cuban, but which really came from Bahia, have been quite superseded by a better and cheaper article grown here in the country or from Paraguay, or, as the director of the statistical office says, "by brown paper saturated in an infusion of ordinary tobacco." So, also, woven goods and ready-made clothing from England and France, which for years have glutted the market and filled the custom-house deposits, show an extraordinary reduction, while French boots and shoes have given place to a better, if not handsomer, article made here in the country from Argentine leather.

In the midst of this great decrease in imports, a very significant indication of the general collapse is the vast reduction in lumber, hardware, and materials for railways; but it shows how seriously the progress of the country has been retarded and set back by the misfortunes of the Government. If the overtrading of the last three years was the result of a too great expansion of credit, the depression which is now apparent in house-building and railway construction is the final effect of the suspension of specie payments, of a depreciated currency, and an excess of irredeemable bank notes. But if the commercial situation—which a year ago was almost desperate—continues on the lines which it now indicates, all this will gradually right itself; and with the return of confidence the development of the resources of the country will again be taken up where it was brought to a stop by the crisis.

The present outlook of the export trade gives confidence to this opinion. The exports of the country are the index of its development and industrial progress; and, while these continue to exhibit so healthy and so promising a growth, there need be no fears that the people of the Argentine Republic, whatever may be the hopelessness of the national finances, will not come out victorious from the trials which have for a time overwhelmed them. The surplus of production over and above the needs of the nation, and which is just so much gold in the markets of Europe and the United States, is becoming year by year more decided and more important, and, as the country recovers from its depression, will go on increasing in quantity and value. The returns for 1891, under the circumstances, could hardly be more gratifying. Compared with the exports of 1889 and 1890, we have the evidence of a steady and decided progress:

Class of exports.	1889.	1890.	1891.
Products of the cattle and sheep industry	$69,162,739	$61,306,597	$64,102,909
Products of agriculture	10,107,173	25,591,401	26,542,926
Products of industrial establishments	6,305,422	8,999,236	4,229,661
Products of the forest	793,297	1,413,324	2,145,510
Products of the mines	1,629,160	673,690	1,355,313
Products of the chase	122,731	346,073	858,156
Various	2,074,833	2,488,672	3,984,525
Total	90,195,355	100,818,993	103,219,000

While there is not much difference between the values of the exports of 1890 and 1891, in the matter of quantity the returns show that there was a decided increase. Thus the exports of wool in 1891 were 20,000 tons more than in 1890, and of wheat 68,000 tons more in 1891 than in 1890, and so with other items. The shipments of agricultural products are especially worthy of note, on account of the rapidity with which, during the last few years, they have come to the front. A good wool season now and a large wheat crop in the coming harvest will do wonders in pulling the country through its troubles.

Indeed, with all due regard for the wonderful proportions which the cattle and sheep industry has of late years assumed in the Argentine Republic, and of the fact that the tables of exports are yet greatly made up of the wool clip and the products of the *saladeros*, it is evident that in the not very distant future the agricultural industry will come to the front and occupy the first place in the category of the country's shipments abroad. It would appear from the statistics that the former has already reached its greatest development. Jerked beef has quite lost its hold on the people of Cuba, Brazil, and Spain, and the wool clip of the world is getting to be so in excess of the demand that the prices of both commodities have for several years been much below the old figures. Meanwhile the Argentine "inside" pampas have so greatly increased in value, and the cost of production is so much more than formerly, that it is getting to be unprofitable to raise cattle and sheep, except in the far distant "camps," and, as an acre of land, which will feed only one bullock worth $10, or three sheep worth $9, will produce 25 bushels of wheat, which will sell in the market for a good deal more money, it is not surprising that the attention of the people has been directed to the production of crops and that every year sees a larger breadth of land devoted to the raising of breadstuffs. From very small beginnings, the agricultural industry has continued to make a steady advance. Fifteen years ago flour was imported from the United States, and the exports of the cattle and sheep industry amounted to $50,855,126. Now the Argentine Republic not only raises enough breadstuffs for its own use, but ships a surplus amounting to $26,542,926 to Europe, while the exports of the cattle and sheep industry have only increased to $64,102,909. It will not be long before the agricultural products of the country will in shipments abroad not only reach, but surpass these figures.

TRADE WITH GERMANY.

The trade of the Argentine Republic with Germany for 1891 was $17,828,487, as compared with $23,867,913 in 1890 and $32,598,226 in 1889. The imports of 1891 show a decrease on the trade of the previous year of $6,094,900, while the exports are just about the same. The principal imports from Germany for 1891 were the following:

Articles.	Value.	Articles.	Value.
Rice	$401,176	Wire fencing	$387,737
Sugar, refined	155,632	Sewing machines	34,172
Codfish	44,407	Machinery	98,433
Liquors	51,718	Porcelain	33,907
Sackcloth	775,696	Wooden matches	34,438
Woolen cassimeres	150,533	Railway materials	48,666
Flannels	113,100	Hardware	172,768
Cotton goods	549,473	All other imports	2,360,166
Woolen goods	122,927	Total	6,206,372
Stockings	421,011		
Malt	200,412		

The exports to Germany in 1891 were $11,621,898, against $11,566,441 in 1890. The following were the principal articles:

Articles.	Value.	Articles.	Value.
Sheepskins	$225,769	Linseed oil	$83,726
Cowhides:		Grease	42,709
Dry	136,655	Cabinet woods	135,197
Salted	916,274	Minerals	218,982
Horsehides	918,120	Nutria skins	323,470
Wool	7,417,778	Horsehair	57,355
Maize	216,503	All other shipments	205,844
Wheat	690,198	Total	11,621,898
Linseed	74,318		

The wool shipments amounted to 28,529 tons, against 24,731 tons in 1890. The shipments of wheat amounted to 11,503 tons, against 9,368 tons in 1890.

TRADE WITH BELGIUM.

The total trade of Belgium with this country in 1891 was $24,505,655, against $22,989,796 in 1890, an increase of $1,515,859, the imports being $4,607,842 less and the exports $6,127,701 more. The principal imports were the following:

Articles.	Value.	Articles.	Value.
Refined sugar	$247,249	Wire for fencing	$372,401
Cotton goods	263,560	Iron:	
Woolen goods	531,059	Unworked	163,065
Ready-made clothing, etc	145,027	Columns	87,752
Furniture, etc	70,968	Railway materials	2,511,959
Arms	106,042	Materials for posts	286,649
Zinc, unworked	61,659	All other imports	1,198,855
Glass	96,892	Total	6,374,868
Paper	231,731		

The exports to Belgium were as follows:

Articles.	Value.	Articles.	Value.
Horsehair	$321,096	Linseed	$292,989
Goatskins	98,066	Maize	294,355
Sheepskins	57,478	Wheat	5,997,655
Ox and cow hides	1,360,553	Linseed oil	34,102
Cabinet woods	59,496	Oil cake	85,423
Nutria skins	107,813	All other exports	165,791
Meat extract, etc	239,961	Total	18,130,787
Wool	8,916,009		

The wool shipments to Belgium amounted to 34,292 tons, against 21,337 tons in 1890. The shipments of wheat were 99,960 tons, against 42,535 tons in 1890. There were also shipped 276 tons of flour, included in articles not enumerated.

TRADE WITH FRANCE.

The imports from France in 1891 were only $7,925,296, against $19,875,877 in 1890, a decrease of $11,950,581. The exports were $24,142,260, against $26,683,318 in 1890, a decrease of $2,541,058. The total decrease in the trade with France, compared with 1890, is $14,491,639. The imports were as follows:

Articles.	Value.	Articles.	Value.
Refined sugar	$1,322,793	Hardware, etc	$303,183
Wines and liquors	1,111,926	Machinery, etc	1,039,184
Dress and other goods	2,103,015	Jewelry, etc	201,285
Perfumery, drugs, etc	290,198	All other imports	970,483
Furniture, etc	104,374	Total	7,925,296
Paper, books, etc	218,469		
Boots, shoes, etc	260,386		

Among the imports were 6,962 tons of refined sugar and 9,236,143 liters of Bordeaux wine in casks.

The exports from the Argentine Republic to France were as follows:

Articles.	Value.	Articles.	Value.
Live sheep	$147,477	Wool	$15,296,991
Live cattle	41,000	Linseed	117,985
Kid skins	468,080	Maize	115,306
Frozen sheep	167,236	Wheat	1,777,245
Horsehair	85,977	Flour	78,605
Sheepskins	3,046,415	Tallow	138,203
Ox and cow hides	842,079	Oil cake	246,604
Cabinet woods	367,514	All other exports	582,874
Minerals	655,293	Total	24,242,260
Bones	68,476		

The shipments of wool amounted to 58,449 tons, against 55,842 tons in 1890. The shipments of sheepskins were 15,232 tons, against 19,945 tons in the previous year. The shipments of mutton carcasses were 2,090 tons, against 1,331 tons in 1890. The shipments of wheat were 29,620 tons, against 16,213 tons in 1890; and of flour 982 tons, against 339 tons in 1890.

TRADE WITH GREAT BRITAIN.

The trade of the Argentine Republic with Great Britain, which in 1890 reached to $77,115,605—the largest figures it ever attained—fell back in 1891 to $45,110,622. As a matter of some interest in showing the course of British trade, I give the figures for the last ten years, as follows:

Year.	Imports.	Exports.	Total.
1882	$19,554,962	$7,625,516	$27,180,478
1883	30,695,963	5,956,093	36,652,056
1884	39,727,694	7,211,437	37,939,131
1885	35,357,608	12,816,341	48,191,909
1886	33,432,660	10,071,850	43,504,510
1887	34,779,210	17,085,000	51,864,210
1888	44,044,851	17,061,411	61,106,262
1889	56,820,169	14,931,394	71,571,563
1890	57,816,510	19,299,095	77,115,605
1891	28,312,410	16,798,212	45,110,622

As Great Britain has from the first had almost the entire control of Argentine trade, no better comment than the decrease in English imports could be offered to show the stringency of the crisis here. All classes of imports and lines of goods from Great Britain have been alike affected by the hard times.

The following are the figures of the principal imports in 1891:

Articles.	Value.	Articles.	Value.
Stock for breeding purposes	$50,580	Hardware, etc	$1,134,315
Comestibles and groceries	568,377	Machinery, etc	542,100
Liquors	80,596	Railway and other materials	11,004,977
Woven goods, woolens, and cottons	9,022,669	Jewelry, etc	236,449
Ready-made clothing	532,807	Stone coal and coke	3,208,528
Drugs, paints, and chemicals	694,701	All other imports	795,225
Furniture, etc	301,984	Total	28,312,410
Paper, etc	139,102		

The stone coal imported amounted to 311,221 tons, against 442,022 tons in 1890. The imports of railway and other materials in 1890 amounted to $26,596,724.

The exports from the Argentine Republic to Great Britain in 1891 were as follows:

Articles.	Value.	Articles.	Value.
Cattle and sheep	$224,912	Maize	$359,601
Frozen mutton	1,695,011	Wheat	8,403,224
Goatskins	223,050	Preserved meats	283,650
Horsehair	85,097	Tallow and grease	494,076
Sheepskins	471,684	Tanned hides	98,130
Ox and cow hides:		Cabinet woods	673,140
Dry	713,452	Minerals	266,666
Salted	667,409	Bone ash	152,675
Wool, unwashed	585,864	All other exports	684,157
Salted tongues	144,833	Total	16,798,212
Bones	362,705		
Linseed	207,886		

The exports of frozen mutton amounted to 21,187 tons; of sheepskins, 2,358 tons; wool, 2,253 tons; wheat, 140,053 tons; preserved meats, 2,765 tons; tallow and grease, 4,256 tons; bone ash, 9,542 tons; bones, 24,247 tons.

In regard to the trade of Great Britain with the Argentine Republic, it may be remarked that the great decrease which is seen in the figures ($32,008,983) compared with those of 1890 has no significance as showing any permanent weakening of the commercial relations between the two countries. The decrease merely emphasizes the severity of the monetary crisis here. By the ties of mutual interest, the business relations of the River Plate and Great Britain are not only an established fact, but they could hardly be more intimate. Besides the mere commerce, with its gigantic proportions, which has grown up between the two countries, there is now invested here an immense amount of British capital in other pursuits—in lands and land companies, in cattle and sheep farming, in manufactures, in mining, in meat-export establishments, in river steamers, in tram cars, in railways, in docks, in waterworks, in gas companies, in banking, in steamship lines, to say nothing of the other immense amounts which have been placed in cédulas and in the securities of the nation and of the different provinces, until it almost seems that the English have the preference in everything pertaining to the business and business interests of the country. Nothing appears to be wanting to assist, dispatch, and infinitely augment the commerce which they now so completely control or to strengthen the industrial foothold which they already possess in the Argentine Republic. They are "in" everything, except politics, as intimately as though it were a British colony.

TRADE WITH THE UNITED STATES.

The movement of trade for the last year between the United States and the Argentine Republic exhibits a very remarkable collapse. Compared with 1889, there is a decrease of $16,868,035, and with 1890 a decrease of $7,708,093. Indeed, our commerce with this country has gone back to the figures of twenty years ago. As a matter of some interest at this time, I give a table of trade with the Argentine Republic from 1872 to 1891, inclusive:

Year.	Imports.	Exports.	Total trade.
1872	$3,505,994	$4,312,305	$7,818,299
1873	5,167,616	3,032,945	8,200,561
1874	3,949,580	3,747,300	7,696,884
1875	3,069,354	3,055,205	6,124,559
1876	1,180,770	2,393,236	4,274,006
1877	2,249,320	2,415,486	4,664,806
1878	2,773,589	2,547,187	5,320,776
1879	3,921,379	3,917,676	7,839,055
1880	3,224,743	5,126,440	8,351,183
1881	4,268,110	4,035,714	8,323,824
1882	5,054,764	2,956,582	8,051,346
1883	4,933,054	3,510,574	8,443,628
1884	7,454,832	4,064,848	11,519,680
1885	7,006,719	5,563,841	12,570,560
1886	7,673,284	3,580,406	11,253,690
1887	11,004,553	5,938,808	16,943,361
1888	9,909,895	6,665,520	16,575,415
1889	16,801,750	7,726,691	24,528,441
1890	9,301,541	6,066,958	15,368,499
1891	3,445,904	4,214,502	7,660,406

The following are the returns in detail of our imports to and exports from the Argentine Republic for 1891:

Table showing the imports from the United States in 1891.

Articles.		Quantity.	Official value.
Olive oil	kilograms	60,457	$19,951
Starch	do	19,320	2,318
Dried and canned fruits	do	249	96
Flour, other than wheat	do	466	134
Corn	do	250	45
Lard	do	52,435	16,255
Canned fish	do	14,633	3,223
Tea	do	39	39
Beer, bottled	dozens	118	275

Table showing the imports from the United States in 1891—Continued.

Articles.	Quantity.	Official value.
Whisky:		
Bottled ... dozens	222	$933
In casks ... liters	4,862	1,945
Alcohols and liquors not otherwise specified ... dozens	14	68
Cigars, Habana ... kilograms	873	5,294
Cigarettes, all classes ... do	600	1,200
Tobacco:		
Leaf—		
Habana ... do	766	460
Other classes ... do	140,164	43,129
Fine cut, Habana ... do	2,809	2,247
Carpeting ... do	859	772
Raw cotton ... do	218	131
Ribbon ... do	148	558
Edging and inserting ... do	31	425
Tow cloth ... do	2,916	525
Silk thread ... do	58	907
Spun goods, wool and cotton ... do	250	150
Oilcloth ... do	3,481	1,741
Rope and cordage ... do	14,800	2,820
Canvas ... do	32,517	22,710
Lamp wicking ... do	2,703	2,013
Houselines ... do	444,126	177,450
Cotton goods ... do	27,953	20,363
Woolen goods ... do	3,540	2,478
Silk goods ... do	51	909
Calicoes ... do	175	175
Gloves ... do	7	168
Hosiery:		
Silk ... do	16	256
Other classes ... do	484	1,089
Handkerchiefs, silk ... do	121	2,420
Ready-made clothing	...	408
Ready-made articles:		
Cotton	...	65
Wool	...	144
Acids	...	530
Oils	...	34,316
Liquid ammonia ... kilograms	6,684	2,339
Spirits of turpentine ... do	233,060	30,297
Varnishes ... do	6,319	5,059
Benzine ... do	31,523	5,784
Bitumen ... do	9,400	2,539
Carbonate of potash ... do	7,430	1,115
Paints:		
In powder ... do	22,100	480
Prepared ... do	2,000	200
Fireworks ... do	31,281	10,948
Specific for sheep scab	...	55,589
Glucose ... kilograms	885	70
Soap ... do	11,307	2,303
Patent medicines	...	7,130
Perfumery	...	2,188
Rosin ... kilograms	1,504,243	37,606
Pharmaceutical products	...	6,078
Chemical products	...	119
Caustic soda ... kilograms	1,720	86
Sulphate of lime ... do	16,900	338
Vaseline ... do	1,732	867

Table showing the imports from the United States in 1891—Continued.

Articles.	Quantity.	Official value.
Lumber:		
Pine...square meters	3,418,276	$1,425,897
Walnut...do	7,064	7,064
Oak...do	19,719	15,775
Other classes...do	4,153	1,936
Trunks and boxes...number	10,000	12,300
Carriages and wagons...do	14	1,061
Barrels and casks, empty...do	1,477	2,213
Furniture	....	31,914
Pianos...number	1	200
Other manufactured articles of wood	....	12,299
Paper:		
Printing...kilograms	1,299	337
Wall...do	650	169
Wrapping...do	1,640	748
Litmus...reams	330	858
Cardboard...kilograms	4,389	1,760
Articles of papier-maché	....	153
Other articles of paper manufacture	....	229
Blank books...kilograms	3,019	3,028
Printed books...do	30,691	30,691
Printed music...do	185	148
Printed matter in general...do	45	68
Boots and shoes...dozens	78	417
Valises and satchels...number	58	245
Cured skins	....	310
Steel, unmanufactured...kilograms	340	51
Arms and munitions, etc	....	11,480
Wire:		
Fencing...kilograms	60,000	3,200
Other classes...do	2,143	311
Kitchen utensils	....	1,103
Nails...kilograms	44,444	5,884
Iron safes...do	2,556	563
Iron piping...do	24,520	1,471
Stoves and stovepipes...do	3,330	417
Cutlery	....	655
Building ornaments of iron	....	4,281
Unmanufactured iron...kilograms	24,160	966
Tools and implements, artisan and domestic	....	7,017
Iron furniture	....	90
Plows...number	8,683	36,159
Husking machines...do	117	669
Rakes...kilograms	4,374	3,140
Plowshares...do	103,427	10,074
Planters...number	5	150
Reapers...do	884	196,000
Spades, shovels, and picks...kilograms	105,790	15,723
Other agricultural machinery and tools	....	9,564
Pumps...number	632	3,382
Sewing machines...do	451	6,256
Other machines and motors	....	41,182
Other manufactured articles of iron	....	34,097
Materials for railroads	....	235,871
Materials for electric light	....	4,205
Materials for city sewerage	....	959
Materials for port works	....	23,214
Materials for tramways	....	3,500
Jewelry	....	453
Fixtures for gas and electric light	....	1,749

Table showing the imports from the United States in 1891—Continued.

Articles.		Quantity.	Official value.
Copper and bronze, manufactured			$2,179
Scientific instruments			205
Tin, manufactured			929
Metallic belting			1,097
Clocks	number	1,800	2,688
Scales	do.	573	2,083
Zinc, unmanufactured	kilograms	6,643	565
Other metals and their manufactures			1,807
Glassware			2,144
Lamps			7,846
Crockery			1,001
Marble, alabaster, etc			1,500
Grindstones	kilograms	1,450	44
Building stone			32
Porcelain ware			123
Coal	kilograms	15,519,685	155,197
Coke	do.	57,000	969
Kerosene	liters	7,966,846	398,342
Fancy articles			21
Buttons	gross	120	360
Gutta-percha goods			29
Toys			400
Lead pencils	gross	100	130
Church ornaments			210
Straw goods			83
Seeds	kilograms	7,070	569
Apothecary apparatus			1,079
Office utensils			1,470
Various unenumerated articles			96,904
Total			3,445,904

Table showing the exports to the United States in 1891.

Articles.		Quantity.	Official value.
Horns, cattle	kilograms	94,150	$5,649
Hair	do.	453,871	181,549
Skins:			
Goat	do.	493,478	345,434
Kid	do.	19,385	34,893
Sheep	do.	281,161	56,231
Carpincho	number	23,459	23,459
Nutria	kilograms	112,872	90,298
Other kinds			5,097
Hides and kips, ox and cow, dry	number	877,703	1,711,030
Wool, unwashed	kilograms	5,781,150	1,503,099
Wheat	do.	1,453,070	87,184
Tallow	do.	22,000	2,530
Native woods			3,660
Quebracho			45,447
Ostrich feathers	kilograms	11,330	11,330
Bran	do.	284,000	4,828
Bone ash	do.	559,965	8,959
Claws, animal	do.	117,668	2,942
Bones	do.	5,044,214	75,663
Various articles of national produce			15,220
Total			4,214,502

In regard to the imports from the United States, it must be said that the decrease is not merely in lines of goods in which we have assumed to compete with other countries, but equally in such articles as we have no competition for, the crisis here having quite destroyed the market for many things in which we had had pretty much the exclusive trade. This will appear from the following table, which gives the leading imports for the last three years:

Imports.	1889.	1890.	1891.
Turpentine	$46,252	$55,822	$30,997
Starch	27,991	11,847	2,318
Agricultural implements	946,888	477,517	366,526
Lamps, gas fixtures, etc.	61,136	74,662	12,680
Lumber	7,162,194	3,948,614	1,450,672
Furniture	281,827	324,843	44,423
Cotton goods	150,845	90,119	20,569
Kerosene	774,363	616,574	398,342
Railway materials, machinery, etc.	2,782,319	1,266,753	267,729
Drugs, chemicals, etc.	443,538	451,224	205,981
Hempen and woolen goods	753,647	395,213	212,128
Tobacco and cigars	120,748	185,446	52,330
Coal	432,239	474,232	155,297
Lard	93,016	98,863	16,255
Fish	42,685	36,860	3,223

It is not, however, to be assumed that this very decided decrease in our shipments of articles of prime necessity means a permanent falling off in such lines of goods. As I have heretofore suggested, it rather marks the stringency of the liquidation through which the Argentine Republic has been passing; and, so soon as the pressure eases up and business regains its old-time confidence, it is safe to predict that there will be a corresponding increase in the foregoing lines of imports.

So far as exports to the United States are concerned, the crisis has had no other effect than such as could have been expected from the general depression of business. While the amount of shipments is $1,852,454 less than in 1890 and $2,512,189 less than in 1889, it was in great part due to the fact that the orders from the United States for purchases were not so large as in those years. Quite all of the hides and all of the wool exported to American ports are sent forward on the call of hide merchants and carpet manufacturers, which varies according to the demands of the market at home. The following is a comparative table of the value of the principal shipments for the last five years:

Articles.	1887.	1888.	1889.	1890.	1891.
Ox and cow hides	$3,696,235	$4,487,714	$4,026,885	$2,391,173	$1,721,030
Wool	1,200,190	794,205	2,042,506	1,950,548	1,903,099
Goatskins	342,324	622,204	649,774	794,142	345,434
Hair	270,696	239,774	249,302	298,473	181,549

By comparing the last two years, it appears that there were 368,578 less hides shipped to the United States in 1891 than in 1890; also that the shipments of carpet wools were 720,676 kilograms less in 1891 than in 1890. Of goatskins the shipments were 1,134,489 in 1890, against 493,478 in 1891. The shipments of hair were almost equal for the two years.

The total shipments of dry ox and cow hides from the Argentine Republic in 1891 were 2,678,905 in number, of which 877,703 went to the United States. The total shipments of unwashed wool in 1891 were 138,605,838 kilograms, of which only 5,781,150 went to the United States. This was the Cordoba or carpet wool of the upper provinces, all of which was purchased by the carpet manufacturers of Boston. The fine or clothing wools continue to be all shipped to European ports. From present appearances, I think for 1892 exports to the United States will quite reach the figures of 1890.

HOW AMERICAN TRADE COULD BE INCREASED.

The Argentine Republic, however, is a country which, for the most part, produces only raw materials—the bulk of its exports, as we have seen, consisting of wool, hides, skins, etc. If the United States have no market or an uncertain market for such articles or its fiscal laws are such that it will not pay to ship them to our ports, it is out of the question that our country can have a very large or a very reliable trade with the River Plate. During all the twenty years that I have been at this port I have persistently sought to impress upon our Government the importance of this fact, and have in my reports time and again suggested that modifications of such restrictions, thus stimulating a freer exchange of products, was "the key which would open a large reciprocal trade between the United States and the Argentine Republic." I can only reiterate what I have heretofore so often said, and I do so at the request of American merchants dealing with the River Plate, in the hope—which they express—that something may be done to ease up the situation and give them the chance of a market for Argentine wools in the United States. There is no doubt that it would have a marked effect upon our commerce with this country—not merely in respect to the amount of shipments from here, but, what is more important to us, in the increase of the imports hither of our manufactured goods. It is well said that "business begets business," and the opening of our markets to the wools of this country would have a direct effect, not only in strengthening our commercial relations with the people of the Argentine Republic, but—what is always desirable—in promoting their good will and bringing them, socially and politically, nearer to us.

Under our present methods, however, of doing business with the Argentine Republic we can not expect our trade to reach any such figures as the mutually kind regard which the two nations have for each other politically would warrant. We must not suppose that we can divert the great body of Argentine foreign commerce from its old and well-established markets until we can offer advantages and facilities at least as good as those which other nations have established for themselves. We continue to be too unequally handicapped in a number of ways for us to aspire, for the present at least, to any trade supremacy with this portion of South America. I have so often referred to the hard conditions of our commerce with the River Plate that it is scarcely necessary to repeat them. Until we have close and regular steam intercommunication, more intimate business relations by means of branch houses or direct agencies, more favorable international banking facilities, and a more satisfactory system of trade credits, it is useless for us to attempt any formal competition with the manufacturing countries of Europe, all of which are thoroughly equipped for the business in hand. I repeat that we can not expect to sell if we can not deliver on the same terms, on the same credits, and with equal promptitude with other commercial nations; and, even when we shall have these to offer, we shall have the difficult task of changing a course of trade which has for years been emphatically set toward Europe.

AMERICAN STEAMSHIP LINE.

In regard to the much-needed steamship line, I am gratified to be able to note that within the last three months representatives of the New York and Brazilian Steamship Company have been here, and, after a careful examination of the field, have made such arrangements as will insure the arrival here of a steamer once every month direct from New York. As the company, has not only ample means to carry out the project, but an immense amount of American pluck, coupled with an implicit faith in the prospects of an increased trade between the United States and the River Plate, it would seem that the question of regular and direct steam communication, so long and so persistently demanded by the friendly relations which have always existed between the two countries, has at last found its solution. And when, on the 27th of October last, the American steamer *Allianza* (Meissner, master), the pioneer steamer of the new line, arrived at this port, bringing mails and passengers, only twenty-four days out from New York, you may be certain that the event was duly and appropriately commemorated. As this is the only steamer in the merchant service carrying the American flag which has been seen at Buenos Ayres "since time whereof the memory of the oldest merchant runneth not to the contrary," her presence here caused a very pleasant feeling, not only among Americans residing here, but also among those of other nationalities engaged in trade between the Argentine Republic and the United States; and they heralded her arrival as the *avant-coureur* of a more satisfactory commerce and of closer business and social relations between the two nations. When may we expect to have the other prerequisites to an increased trade with the River Plate?

THE CHICAGO EXPOSITION.

It is to be hoped that this new American line will offer proper and sufficient facilities for the passenger traffic which, if everything is favorable, will offer from the River Plate to New York next season on the occasion of the Chicago Columbian Exposition. If there is direct communication, without the discomfort of a change of steamers, it is understood that a large number of Argentine families will take advantage of this grand opportunity to visit the United States. Other lines of steamships are also proposing to put on special steamers for the round voyage.

In pursuance of our invitation, the Argentine Government has been occupied during the last year in collecting a national exhibit for the Chicago Fair. The straitened financial condition of the nation has deterred it from making such adequate appropriation as would otherwise have been voted, but with the limited means at the disposal of Commissioner Victorica it is believed that there will be a very creditable display of the products of the Argentine Republic. A large portion of the articles, nicely arranged, are now on preliminary exhibition here, and they are inspected daily by large and interested crowds. While there is a great profusion of "odds and ends," the lines of exhibits which must especially attract attention at Chicago are the samples of Buenos Ayres clothing wools, the polished sections of Argentine cabinet woods, the specimens of minerals, the native wines, the display of cereals, and the parade of woolen fabrics. The merino wools of this country are noted all over the world for their fine fiber, strength, and elasticity, and it will be worth while for our woolen manufacturers to see for themselves what the Argentine Republic can produce. The woods, in an almost endless variety of vein and color, will be a marval to those who have not yet seen them. The minerals, especially the baser metals, make a very creditable display. The wines of San Juan, Mendoza, Cordoba, and Rioja, though not yet generally known, have a good reputation for their exquisite flavor and bouquet and are destined to come to the front in the markets of the world. As for the samples of wheat, maize, and barley, I am sure they will be particularly sought after and admired, as coming from a country which a few years ago the well-known savant Dr. Burmeister, in his "Republica Argentina," contended could never be a producer of breadstuffs, but which this year will have a surplus of 1,000,000 tons of A1 wheat and 2,000,000 tons of corn for export to Brazil and Great Britain. But the greatest surprise of all, perhaps, will be the exquisite specimens of woolen fabrics made here in Buenos Ayres, with a texture and finish which secured them the gold medal at the recent expositions of Paris and Berlin. All the exhibits will go to show that in all that stands for material wealth and possibilities the Argentine Republic stands abreast with the most-favored countries of the world.

ARGENTINE TARIFF FOR 1893.

The Argentine Congress, now in session, has just completed the consideration of the customs tariff for 1893. There are a number of very important changes in the law, and I give a translation of its provisions, as follows:

AD VALOREM DUTIES.

ARTICLE 1. All foreign merchandise imported for consumption shall pay a duty of 25 per cent on its valuation in deposit, except as follows:

(1) Harness, trappings, and all metal articles; woolen, silk, linen, cotton, or mixed goods; boots and shoes (finished or unfinished), perfumery in general, toilet soaps, ready-

made clothing, hats and caps other than those with specific duty; objects of art and fancy which shall pay a duty of 60 per cent.

(2) Arms and accoutrements, cartridges, cases, firecrackers, mosaics, ammunition, powder for sporting purposes, which shall pay a duty of 50 per cent.

(3) Brass wire, leather in general, fine laces, ribbons and cords, straw hats, stockings of all kinds, shirtings, skirts, children's clothing, which shall pay a duty of 40 per cent.

(4) Wire from No. 1 to 13 in rolls or spools, raw cotton, jewelry, plows, crude sulphur, twine or wire for binding purposes, fire brick, machinery and materials for public lights (whether of electricity or gas), machinery for the preparation of preserved meats (whether of the frigorific or other systems), machinery and engines for industrial purposes and raw materials intended for the same and which can not be applied to other uses, engines in general (whether steam, gas, compressed air, or electricity), sewing machines and needles for the same, detached motors, nitrate of soda to be used for industrial purposes, precious stones unset, duplicate pieces for the repair of engines or machinery, white pine and spruce unworked, printing and lithographic presses, silk and thread for embroidery, sulphate of lime, molding clay, which shall pay a duty of 5 per cent.

SPECIFIC DUTIES.

(5) And the following specific duties, to wit:

Steel in ingots	per kilogram	$0.02⅛
Galvanized wire from 1 to 13	per 10 kilograms	.05
Starch	per kilogram	.09
Sackcloth	do	.01½
Rice starch	do	.01½
Rice, including coverings	do	.01⅓
Sugar:		
Unrefined	do	.07
Refined	do	.09
Liquids:		
Vegetable oils	do	.12
Alcohol—		
In casks (79°)	per liter	.15
In bottles (68°)	do	.30
Bitters, anise, cognac, gin, kirsch, and other liquors (68°)—		
In casks	do	.25
In bottles	do	.30
Beer and cider—		
In casks	do	.10
In bottles	do	.15
Liquors (68°)—		
In casks or demijohns	do	.25
In bottles	do	.30
Common wine—		
In casks	do	.08
In casks, 18°	do	.09
Fine wine—		
In casks	do	.25
In bottles	do	.25
Coffee	per kilogram	.08
Iron pipes:		
75 millimeters in diameter	do	.00⅛
Galvanized	do	.03⅛

Chocolate	per kilogram	$0.60
Copper in bars, ingots, and sheets	do.	.10
Preserves in general	do.	.30
Specifics for curing scab in sheep	do.	.01¼
Tin	do.	.02
Stearin	do.	.14
Farina	do.	.00¾
Macaroni	do.	.09
Matches:		
Wax	do.	.80
Wooden	do.	.40
Biscuits and crackers	do.	.15
Glycerin (30°) for industrial purposes	do.	.02
Iron and steel:		
Ungalvanized	per 10 kilograms	.02
Galvanized	per kilogram	.02
Tin plates	do.	.00½
Kerosene	per liter	.03
Books in paper covers	per kilogram	.10
Canvas duck	do.	.02
Butter	do.	.30
Lard	do.	.18
Playing cards	per gross	60.00
Felt for hats:		
Unworked	per piece	.40
Worked	do.	.80
Writing and printing paper	per kilogram	.03
All other paper	do.	.15
Lead	do.	.00½
Paris prints	do.	.03½
Cheese	do.	.30
Hats:		
Silk	each	2.50
Felt	do.	1.00
Wool	do.	.50
Tobaccos, etc.:		
Habana cigars	per kilogram	4.00
Other cigars	do.	2.00
Habana tobacco	do.	2.00
Paraguayan tobacco	do.	.50
Other tobacco	do.	1.00
Cigarettes	do.	2.00
Snuff	do.	2.00
Tobacco in the leaf	do.	.50
Tea	do.	.25
Stearin and paraffin candles	do.	.15
Paraguayan mate:		
In boxes	do.	.05
In bags	do.	.05
Brazilian mate	do.	.05
All varieties of mate in the leaf	do.	.02
Zinc in bars or ingots	per 10 kilograms	.03

Liquors, when they exceed the maximum strength, shall be surcharged with half a cent per liter for each degree of excess.

Common wine in casks whose alcoholic strength exceeds 46° shall be surcharged with 1 cent per liter for each degree of excess.

In all articles paying specific duty according to weight only the immediate first covering shall be taken into the account, except in the case of tea and of such articles as come in wooden casks, which shall pay according to the net weight.

EXPORT DUTIES.

ART. 2. The following products and manufactures shall pay an export duty of 4 per cent ad valorem, to wit: Animal oil, horns and horn piths, jerked beef, bone ash, hair, hides and skins in general, hide cuttings, bones, wool, ostrich feathers, and grease. Old iron is subject to an export duty of 25 cents per 1,000 kilograms.

FREE LIST.

ART. 3. The following articles shall be imported free of duty, to wit: Animals for breeding purposes (except racing horses), white sand (de Fontainebleau), drills for mining up to 75 centimeters in diameter, vessels (rigged or unrigged), Guayaquil materials for the manufacture of buttons, stone coal and charcoal, impure naphtha exclusively intended for combustion, wooden and iron casks for tunning, corks; shooks for barrels, cases, boxes, etc., for packing preserved meats introduced by establishments engaged in such business; filters of the Pasteur system, fresh fruit (except grapes), dynamite explosives, guides and torches for mines, old iron, flour and cornmeal, wood of all kinds, wool, cotton and yarns, spun yarns and threads for looms, locomotives, hops, agricultural engines, engines for steamers, corn (shelled or in the cob), furniture and tools of immigrants, coined money, iron and steel materials for railways and tramways, objects used in Catholic worship; gold in powder, grains, or bullion; vegetable fiber for the manufacture of paper, fresh fish, silver in bars or ingots, plants, rabbit skins, mining powder, wheels for railway or tram cars, seeds for agriculture, wheat, furniture and supplies for public schools.

ART. 4. All import duties shall be liquidated according to a tariff of values formed according to the value of the articles in deposit, and all export duties according to the value of the articles prepared for shipment. On all imports not included in the tariff of values the duties shall be assessed according to the invoice price.

The law further provides that all duties shall be paid in gold or in paper currency at such rate as the minister of finance shall fix.

It is further provided that where importers have no established house they must give bond for custom-house operations.

The following article is a new feature in Argentine tariffs, and it may have been intended expressly for the United States and Brazil:

ART. 13. All duties fixed by the present law are intended to represent the minimum tariff applicable to merchandise and products of every country which applies an equal tariff to the exports of the Argentine Republic. In case any nation applies to importations from the Argentine Republic a higher tariff than that which it has for similar articles of any other nation, the Executive is authorized to apply to the merchandise or products of such nation a maximum tariff which will be equal to a surcharge of 50 per cent on the minimum tariff in regard to objects subject to duty, and on articles which are declared free the equivalent to a duty ad valorem of 15 per cent. Whenever a case shall occur where it is necessary to apply the maximum tariff, the Executive shall make a proclamation of the same, naming the country and detailing the facts, etc.

PROSPECTS OF ARGENTINE TRADE.

So far as the present prospects of the Argentine trade are concerned, it is the general impression among business men that the situation will continue to improve. From the depths of the depression which for the last two years has quite overwhelmed the external as well as internal commerce of the country, those engaged in mercantile pursuits are beginning very perceptibly to emerge. Though trade continues, and may still longer continue, restricted, at least it is moving on better and safer lines than it was before the crisis. If commercial confidence has not yet fully returned, at least it some time since passed its aphelion, and Argentine credit is already once more freely discussed and canvassed in business circles. The tables of imports show that the reckless overtrading of late years has given place to much greater conservatism. A year ago it was difficult for importers and merchants to know whom to trust, and all business was implicitly done on a cash basis; the banks restricted their discounts to the minimum, and even "gilt-edged" paper was neglected in the market. Now, once more, there is a very unmistakable movement for the better in commercial circles, and the exchange is again the crowded resort of those who buy and sell. Everybody seems impressed with the idea that the worst is over, and that, with proper caution and prudence, the people of the Argentine Republic, whatever may be the fate of the Government, will in due time be all right again in the markets of the world. I think that the outlook is more encouraging than it has been since the great collapse. At the same time, if I should be asked to give advice, I would say that it is safer for our home merchants and manufacturers to be careful in filling orders and be emphatic in refusing credit, except to houses whose reputations have stood the test of years. Argentine merchants may all be sound and reliable; some of them I know are.

PROGRESS OF THE LIQUIDATION.

The liquidation which has been in progress here during the last year is one of the best signs that business is gradually assuming a better tone. Not only have all schemes of wild speculation lost their hold upon the people, but the thousand and one joint-stock companies for a thousand and one different "short-cuts" to get rich are in process of being wound up; and, though the process has involved and is involving the ruin of many who invested their money in good faith, yet there is a genuine feeling of relief that these bubbles and financial swindles are being wiped out of existence. The amount of wreckage, watered stock, unpaid shares, false bookkeeping, and pledged securities of no commercial value which has been unearthed and brought to the light is matter of special wonder, now that we know how unsubstantial were the structures on which they were based, though at the time, to the infatuated fortune-seekers, who lost their heads and thought they could "make brick without straw," they all seemed real enough and were sought after as choice investments. The merchants of the country who, when the crisis overtook them, were doing business in a very loose way on long credits, have likewise "turned over a new leaf" and placed a salutary check upon the old method of "paying on account." Many of them, in the process of liquidation, have suffered great losses from bad debts and have had to ask for extensions from their creditors abroad; but the most of them have passed the ordeal of the commercial collapse without any serious trouble. The surprise is that so few business houses, under such overwhelming misfortunes as have overtaken the country, have been forced into bankruptcy. The various private banks which were compelled to succumb to the demands made upon them last year have all emerged from their troubles, paid off depositors, and are once more in the full tide of a more conservative system of banking.

DECLINE IN THE GOLD PREMIUM.

Another circumstance which is pointed to as an indication of the commercial revival is the decline in the gold premium. A year ago the value of the gold dollar was $3.75 in Argentine paper currency, that is to say, the value of the national paper was 26½ cents gold to the dollar. Now the value of the gold dollar is only $2.80 in paper, the value of the latter having appreciated to 35⅔ cents gold to the dollar. There is, however, a general impression that the gold premium has been thus forced down, not by reason of anything particularly encouraging in the financial outlook, but through the efforts of the Baring syndicate, who are thus trying to unload the millions of Argentine stocks held by them upon the British public. Besides this, however, there is no doubt that a large amount of foreign exchange is being shoved upon the market here by wool-buyers to pay for the new clip, which is now ready for export. Whatever may be the cause, the very decided fall in the gold premium is the occasion of general rejoicing among tradespeople; and it has produced a better and more buoyant feeling in the market, and especially among importers.

TRADE RETURNS FOR NINE MONTHS OF 1892.

The commercial returns of the country for the nine months ended on the 30th of September, 1892, which have just been published by the Argentine statistical office, very clearly indicate this feeling of returning confidence in the increased figures of both imports and exports. The first three quarters of this year, compared with those of 1891, give the following figures:

Description.	1891.	1892.
Imports	$56,519,196	$68,710,051
Exports	79,555,376	89,086,982
Total	136,074,572	157,797,033

While these figures show an increase of $12,190,855 in imports over those for the corresponding time in 1891, they also exhibit an increase of $9,531,606 in the exports, while there is likewise a trade balance of $20,376,931 in favor of the exports of the country.

The following table gives the imports from and the exports to each country for the first three quarters of 1892:

Country.	Imports.	Exports.
Germany	$7,158,152	$12,710,178
West Indies		893,448
Belgium	4,473,270	11,512,669
Bolivia	38,021	487,648
Brazil	1,568,111	8,735,282
Chile	65,862	1,155,418
Spain	1,602,890	1,784,664
United States	3,734,710	3,418,190
France	7,381,039	19,234,557
Italy	5,650,221	3,332,384
Holland	120,689	2,700
Paraguay	1,262,175	244,519
Portugal	19,472	114,311
Great Britain	25,406,145	17,246,353
Norway and Sweden	14,694	64,797
Uruguay	2,823,912	2,329,717
Countries not designated	1,052,709	3,908,542
Total	62,372,072	87,165,377

These returns can not be regarded otherwise than as very satisfactory, and, if the imports continue to be kept down and the exports to increase, with an annual balance on the Argentine side of the ledger, there can not fail to be a very marked easing up of the exchange market; and the country will be the better off by the difference.

The following table shows the amount of imports in each branch of trade for the first nine months of 1892, not including gold importations, compared with the same for the corresponding period in 1891:

Articles.	1891.	1892.
Live stock	$122,274	$360,790
Alimentary subtances	5,775,349	9,608,067
Liquors	2,779,353	4,369,891
Tobaccos	321,776	264,294
Spun and woven goods	11,081,742	20,148,138
Ready-made clothing and confections	1,904,192	2,812,141
Drugs and chemicals	1,749,912	2,537,733
Lumber and its applications	2,092,349	2,518,521
Paper and its applications	1,208,946	1,807,490
Leather and its applications	330,238	447,038
Iron and its applications	3,122,694	5,866,119
Railway and other materials	13,279,545	2,904,649
Various metals and their applications	646,109	684,585
Glass and stone ware	1,006,580	1,131,796
Combustibles, kerosene, etc	3,107,212	4,737,112
Various manufactured articles	1,595,496	2,173,708
Total	50,118,767	62,372,072
Imports of gold	6,400,429	6,337,979
Grand total	56,519,196	68,710,051

The following table gives the exports in each branch of industry for the first nine months of 1892, compared with those of the same period in 1891:

Articles.	1891.	1892.
Products of the cattle and sheep industry	$55,432,875	$55,569,614
Agricultural products	13,133,972	24,061,570
Industrial products	3,542,829	4,102,461
Products of the forests	1,571,462	694,354
Products of the mines	1,087,558	543,789
Products of the chase	836,497	315,862
Animal and vegetable sundries	940,949	1,240,472
Various articles	1,431,996	627,295
Total	77,978,138	87,165,377
Exports of gold	1,577,238	1,921,605
Grand total	79,555,376	89,086,982

The promise presented by these figures, especially in the exports of agricultural products, strengthens the belief I have already expressed that the hope of the country in great part is ultimately to be found in the development of its farming interests.

MERCANTILE LOSSES DURING THE YEAR.

It must not be assumed, however, whatever may be the present outlook of trade, that the general mercantile business of the Argentine Republic during the year just closing has been either satisfactory or profitable. The violent fluctuations of gold have rendered it impossible for importing houses to be sure of what they were doing. Transactions which at the time they were made seemed to promise good returns have ended in ultimate losses. By marking up their goods to such currency rates as left but little to be feared from the daily changes in the gold premium many houses have been enabled to go through the year very fairly; but no trade can be sure and safe which must be conducted in a fluctuating currency, and some of the most enterprising merchants in the market have had, during the year, to record this fact to their sorrow. The utterly demoralized financial condition of the General Government has greatly interfered with the normal course of trade; and whether the finance minister, in the forlorn hope of being able to keep faith with the creditors of the nation, has bought or sold gold, the effect of thus bulling or bearing the market has invariably hurt somebody financially. Until the trade of the country can be brought back to a specie basis, and the inconvertible paper currency which now occupies the place of money can be withdrawn from circulation, I suppose that the commercial public, as well as the community at large, must continue to buy and sell in a state of uncertainty as to whether their transactions are going to end in a profit or a loss.

FINANCES.

The financial condition of the Government of the Argentine Republic is the great stumbling block in the way of the recovery of the country from the effects of the crisis, as, indeed, it was the prime cause of the crisis itself. It is difficult to know the true figures of the nation's liabilities, for the reason that there is a wide discrepancy in the statements made by different officials. Whatever may be the exact figures, however, the outstanding obligations of the Government are sufficiently large to have placed at fault the financial ability of all the ministers of the treasury since ex-President Roca to provide the ways and means to protect them.

The national revenues for 1891 were estimated by the minister of finance at $74,370,000. They amounted, according to the figures published by the statistical office, to $77,404,328, against $73,150,856 in 1890. The following table gives the several items of revenue:

Sources of revenue.	Amount.	Sources of revenue.	Amount.
Importation	$47,995,992	Tax on banks	$5,748
Exportation	5,380,388	Port and mole dues	880,570
Warehousing	1,036,863	Consular fees	91,894
Additional imports	1,948,026	Interest on public moneys	4,779,384
Stamped paper	3,284,300	Internal tax:	
Stamps	192,024	Alcohol	1,403,535
Licenses	1,907,861	Beer	267,854
Land taxes	3,448,846	Matches	870,651
Post-office	1,491,355	Banks, etc	11,164
Telegraphs	755,982	Land office	263,006
Light-houses	124,968	Sundries	540,005
Sanitary visits	48,704	Total	77,404,328
Tax on bank notes	675,208		

This is the largest revenue ever collected by the Government, in the face of a falling off of nearly one-half in the value of custom-house imports. It is the result of the very large increase in the tariff duties and of the new internal-revenue taxes levied by Congress last year.

The appropriations for the support of the National Government for 1891, according to the figures of the statistical office, were as follows: For ordinary expenses, $50,723,852; for extraordinary expenses, $7,528,510; total, $58,252,362. The amount distributed to each department was as follows:

Department.	Ordinary.	Extraordinary.	Total.
Interior	$12,083,422	$3,983,510	$16,066,932
Foreign affairs	1,118,349		1,118,349
Treasury	18,889,512	3,203,000	22,092,512
Worship, justice, and education	6,718,292	312,000	7,030,292
War	9,013,197		9,013,197
Navy	2,901,080	30,000	2,931,080
Total	50,723,852	7,528,510	58,252,362

It will be borne in mind that the foregoing tables of receipts and expenditures are in paper currency, which, during the year 1891, was worth about 25 cents in gold to the dollar; so that the balance of receipts over expenditures—$19,151,964—if reduced to gold, would be about $4,787,000.

I would further state, however, that the President in his message to Congress gives the total receipts of the Government at only $71,602,118, thus showing a difference of $5,802,210 between his statement and that of the statistical office; so that, according to the President's figures, the balance of receipts over expenditures was $13,349,756, which, if reduced to gold, would be about $3,437,000. These, of course, are only apparent balances, since they were not sufficient to meet the deficiencies of the previous year.

BUDGET FOR 1892.

The budget for 1892, stated in as few figures as possible, was as follows:

Table showing estimated receipts.

From—	Gold.	Currency.
Ordinary revenue	$29,070,000	$16,720,000
Moritorium loan	15,670,000	
Total	44,740,000	16,720,000

Table showing appropriations made by Congress.

Branch of service.	Gold.	Currency.
Ordinary expenses of the Government		$35,570,000
Burning notes		15,000,000
Foreign debt	$8,990,000	
Moritorium loan	15,670,000	
Port works	2,400,000	
Sundries	580,000	420,000
Total	27,640,000	50,990,000

Thus far this year no notes, as provided for, have been burned, nor will there be.

The receipts of the Government for the nine months of this year ended September 30, 1892, have, according to the statistical office, been as follows, in gold:

Imports	$17,607,074
Exports	2,215,875
Other sources	4,081,815
Total	23,904,764

But these amounts were not liquidated in gold, but in paper at the current rate of the day; and the total amount realized by the Government was $67,837,214 in currency. From these figures it is very evident that there will be a serious deficiency at the end of the year between the appropriations and the estimated receipts.

BONDED INDEBTEDNESS.

The total bonded indebtedness of the Argentine Republic on the 31st of December, 1891, according to the figures of the national statistical office, was as follows:

Internal bonded debt	$224,577,800
External bonded debt	135,581,416
Total	360,159,216

The above amounts are in gold. There is, besides this, a bonded debt payable in paper currency, which, at the date above given, amounted to $38,485,154.

The President, in his late message to Congress, stated the national indebtedness as follows:

Internal bonded debt	$227,977,800
Foreign bonded debt	175,527,308
Total	403,505,108

And, in addition, he puts the debt payable in currency at $29,251,689.

And now comes the new minister of finance, Dr. Romero, who, in a published statement, gives the internal and external bonded debt of the nation as follows:

Debt payable in paper currency	$48,700,000
Debt payable in gold	407,000,000
Total	455,700,000

It will be seen that there is a considerable discrepancy in these three statements.

As to the present condition of the debts of the several provinces, I am not able to learn anything definite; but, owing to the fact that in their bankruptcy and general default it has not been possible for them to negotiate additional loans, I assume that there is no great change in the figures since last year, when they were stated to be as follows:

Province.	Debt.
Buenos Ayres	$41,760,000
Santa Fé	27,982,000
Cordoba	34,425,000
Mendoza	5,100,000
San Juan	2,577,000
San Luis	$1,600,000
The other provinces	9,516,000
Total	122,960,000

According to the returns made to the national statistical office, the amount required last year to meet the service of the interest on this indebtedness was given as follows:

Debt.	Interest.	Debt.	Interest.
National debt	$15,837,214	Province of San Juan	$137,000
Province of Buenos Ayres	5,127,105	Province of San Luis	97,000
Province of Cordoba	2,284,760	The other provinces	1,263,870
Province of Santa Fé	1,600,000	Total	26,651,949
Province of Mendoza	305,000		

The interest on the national debt, in great part, was met by the issue of bonds under an agreement made between the Government and the syndicate which was appointed to settle the business of the late house of Baring Brothers & Co., and in regard to which I stated all the particulars in my last annual report under the heading of the "moritorium loan."

In regard to the interest due on the indebtedness of the several provinces, there has been a general default. Not one of them has paid the interest, and not one of them is in a condition to do so.

NATIONAL AND PROVINCIAL CÉDULAS.

Another species of indebtedness, in reference to which both the province of Buenos Ayres and the National Government have come to grief, is that of cédulas, or bonds issued to those who have mortgaged lands to the hypothecary banks. The amount of these cédulas at present outstanding is stated to be as follows, in currency:

Issued by the hypothecary bank of this province	$222,680,000
Issued by the National Hypothecary Bank	140,000,000
Total	362,680,000

Last year the amount outstanding was $524,000,000, of which $320,000,000 were provincial and $204,000,000 national cédulas; so that there has been during the last twelve months an amortization of about $160,000,000, that is to say, cédulas to this amount have been canceled.

The balance sheet of the Provincial Mortgage Bank has been published to the 30th of September, 1892. The institution was founded by the legislature of the province of Buenos Ayres in 1873, and the following table will show the progression of the issue of cédulas and of the amounts outstanding for the years named:

Year.	Issued.	Outstanding.
1875	$22,000,000	$18,170,000
1880	27,520,000	13,585,000
1885	76,560,000	49,775,000
1889	319,660,000	256,770,000
1892	374,850,000	222,680,000

The difference between the issues and the cédulas outstanding shows the amounts which have been canceled, which for 1885 was $26,815,000; for 1889, $62,890,000; and for 1892, $152,170,000. The assets of the bank, according to this report, are as follows:

Face of mortgages outstanding	$222,680,000
Amount due on installments of interest	58,190,000
Houses and lands bought in	2,760,000
Total	283,630,000

So that, according to this showing, there are held by the bank securities to the amount of $50,950,000 in excess of the amount of cédulas outstanding. Ordinarily this would be considered a very safe margin. In this case, however, it is notorious that the face of the mortgages outstanding is greatly in excess of the present value of the lands mortgaged. The mortgages were given during the days of speculation and inflation and were taken by the bank at valuations twenty times beyond what they would sell for now under forced sale. The installments due are simply bad debts; and the houses and lands, excepting the bank edifice at La Plata, are properties bid in because there was no other purchaser, and can not, therefore, be very valuable. Meanwhile, however, the bank is without means to meet its engagements, and the province has for the last two years defaulted in the payment of the interest on the outstanding cédulas.

In explanation of the fact that $152,000,000 of provincial cédulas were canceled during the last year, I take the following from the Buenos Ayres Standard:

> The low price of cédulas offered a tempting opportunity to solvent persons who were indebted to the mortgage bank to redeem their properties, and the profits in transactions of this kind were enormous. Taking the average amount of mortgages redeemed at $50,000, we find that 1,800 persons paid off $90,000,000 of debt with cédulas which cost them only $30,000,000 in cash, and, as these persons had effected their mortgages when cédulas were worth about 80, they made a clear profit of more than $40,000,000.
>
> The consequence, meantime, was disastrous to the bank, all the worst properties remaining as security for the cédulas outstanding. The interest running on this remainder was equivalent to 30 per cent of the money for which they could be redeemed, and it is needless to say that no solvent person would pay 30 per cent per annum for money when discounts in Buenos Ayres had fallen to 6 per cent and even less. We are not surprised, therefore, to find that the unpaid installments due to the bank in September, 1892, reached the enormous sum of $58,200,000.
>
> The actual issue of cédulas is $222,680,000, and at the present market quotations this represents a cash value of $64,000,000, or very little more than the installments due by the debtors to the bank. According to the principles on which the bank was established, the properties mortgaged represent at least double the value of cédulas issued on the same, that is, $445,000,000. The public, however, have come to believe that three-fourths of existing mortgages are purely figurative, the properties representing little or nothing.
>
> It may be said, however, that we take a pessimist view of the unfortunate hypothecary bank, and that its assets would realize $100,000,000. In that case there is no excuse for not proceeding at once to wind it up, as the cédula holders would then receive 40 per cent. We know of many poor families who are plunged in poverty, their whole fortune being in cédulas.

The proposed *moritorio* of four years debars them of all hope of getting anything, as it is very likely that in December, 1896, another *moritorio* will be declared for four years longer. There is no justice in Buenos Ayres if the federal tribunal does not immediately order the hypothecary bank to be liquidated.

The amount of misery which this mortgage bank has inflicted upon innocent holders of its cédulas is beyond computation; and the public here and abroad echo the words of the Standard, that the institution should be liquidated. Instead of this, however, the Buenos Ayres provincial legislature is proposing to give it a four year's *moritorium* within which to pay its debt.

The report of the National Hypothecary Bank is down to the 31st of May, 1892, and it gives a sad statement of its present condition. The following are the total issues of cédulas by this institution, in currency and gold, and the present amounts outstanding:

Class of cédulas.	Issued.	Outstanding.
Currency cédulas	$92,170,000	$80,140,000
Currency notes	2,170,000	2,170,000
Gold cédulas	20,000,000	19,250,000
Total	114,340,000	101,560,000

Reducing the gold cédulas to currency at the rate of $3 for $1, the total issue to date would be $152,000,000, and the amount outstanding would be $140,000,000.

The currency cédulas distributed to and outstanding in each province, etc., were as follows:

Province, etc.	Issued.	Outstanding.
Buenos Ayres city	$43,840,000	$37,750,000
Provinces:		
Buenos Ayres	3,050,000	2,530,000
Santa Fé	7,830,000	6,670,000
Entre Rios	4,990,000	4,790,000
Corrientes	2,870,000	2,800,000
Cordoba	6,530,000	5,520,000
Santiago del Estero	2,330,000	2,160,000
Tucuman	3,160,000	3,050,000
Salta	2,870,000	2,540,000
Jujuy	640,000	610,000
Rioja	530,000	520,000
Catamarca	670,000	660,000
San Luis	1,910,000	1,860,000
Mendoza	3,320,000	2,680,000
San Juan	2,610,000	2,580,000
Territories	5,020,000	3,480,000
Total	92,170,000	80,140,000

So that in five years down to December 31, 1891, the bank had issued $92,170,000 of currency cédulas and only $12,000,000 had been redeemed.

The issue of gold cédulas and the amounts outstanding have been as follows:

Province, etc.	Issued.	Outstanding.
Buenos Ayres city	$9,260,000	$8,990,000
Provinces:		
Buenos Ayres	1,210,000	1,090,000
Santa Fé	1,220,000	1,130,000
Entre Rios	1,250,000	1,220,000
Cordoba	1,380,000	1,240,000
Tucuman	1,000,000	1,000,000
Mendoza	990,000	990,000
San Juan	800,000	770,000
Other provinces	2,890,000	2,820,000
Total	20,000,000	19,250,000

So that of $20,100,000 gold cédulas issued only $750,000 have been redeemed.

The report gives quite an interesting classification of the amounts lent on mortgage still outstanding; and, reducing the whole to currency at the rate of $300 in paper for $100 in gold, we have the following:

Class of loans.	Number.	Amount.
Over $200,000	80	$30,500,000
$100,000 to $200,000	197	31,500,000
$50,000 to $100,000	239	19,300,000
$10,000 to $50,000	1,326	34,600,000
Under $10,000	5,866	22,100,000
Total	7,708	138,000,000

Thus it will be seen that two hundred and seventy-seven individuals owe the bank the enormous sum of $62,000,000, which fully illustrates that the object for which this institution was expressly created has been almost entirely disregarded by those who have had the management of it.

The present deplorable condition of the bank can be understood from the foregoing figures. In regard to the value of the mortgages held for the loans, it appears that during the twelve months ended on the 31st of December, 1891, the bank advertised 1,401 properties to be sold at auction for sums due amounting to $24,000,000, or 30 per cent of the total issue. Of these, the sale of 793 properties, on which $13,760,000 were in default, was suspended; 468 properties, on which $9,100,000 were in default, could find no bidders; and 140 properties, on which $1,580,000 were in default, were sold. These 140 properties brought to the hammer represented an assessed value of $22,000,000, but the amount realized was only $2,030,000.

In this state of affairs the bank is enjoying a *moritorium*, and the Government is paying the interest coupons of the cédulas with other promises to pay.

BANK CIRCULATION.

In spite of the long time which has elapsed since the banks of the Argentine Republic, organized under the general banking law, suspended specie payments, thus failing to redeem their issues in gold over their counters, nothing has thus far been done toward selling their securities and winding them up.

Their aggregate circulation on the 31st of March, 1891, according to the national statistical office, was $249,914,990. According to the same authority, their aggregate circulation on the 31st of March, 1892, was $255,304,402, distributed as follows:

Banks.	Circulation.
National Bank	$90,019,533
Hypothecary Bank (treasury notes)	30,000,000
City of Buenos Ayres (treasury notes)	10,000,000
Provincial banks:	
Buenos Ayres	57,918,200
Cordoba	15,553,796
Tucuman	4,000,000
Mendoza	3,000,000
San Juan	1,656,000
Rioja	3,000,000
Salta	4,432,000
Entre Rios	8,527,793
Santa Fé	15,091,000
Provincial banks—Continued.	
Santiago	$3,766,470
Catamarca	2,390,491
Corrientes	3,163,500
San Luis	630,000
Bank of Buenos Ayres	1,500,000
English Bank of Rio de Janeiro	250,000
Bank of the Argentine Nation	3,000,000
Deficiency	1,897
Total	257,900,680
Retired from circulation	2,596,278
Amount in circulation	255,304,402

To this must be added $7,500,000 in fractional currency issued in 1891 and $5,000,000 issued in 1892, thus increasing the circulation to $267,304,402. The total increase of bank circulation over last year, it will be seen, is $5,389,412 up to the 31st of March. Since then, however, according to the report of the conversion office, there have been further issues of bank notes; and the amount on the 31st of July was $265,264,862, an increase of $15,349,872 over the figures of a year ago, besides $5,000,000 in small notes issued to the National Hypothecary Bank to pay interest on its cédulas.

The summary of all these figures will therefore be as follows:

Authorized national bank issues	$265,264,862
Fractional currency	13,500,000
Delivered to mortgage bank	5,000,000
Total	283,764,862

Besides this, there is about $18,000,000 which the different provinces, without authority of law, have issued during the last year under the name of treasury notes, bonds, etc.

This increase of currency is in the face of the solemn contract of the National Government made with the British bondholders' syndicate in London on the 5th of March, 1891, that, in consideration of the interest loan of $75,000,000, "the Argentine Government will retire from circulation during each one of the years 1891, 1892, and 1893 fifteen millions of bank-note circulation; and that from time to time there will be delivered to Messrs. J. S. Morgan & Co. such proofs as they may reasonably request that this has been done."

THE FINANCIAL OUTLOOK.

I have thus given the present condition of the liabilities of the National Government and of the several provinces. The figures may not in all cases be exact, for the reason that the statements made by different Government officials do not agree with each other; but they are sufficiently so to illustrate the fact that the finances of the country have not improved in any respect during the last year. At the time of my last annual report the National Government, finding itself without funds or the prospect of funds to meet the service of the interest on its foreign debt, made an arrangement with the creditors by which the interest for the years 1891, 1892, and 1893 was to be paid in bonds, the proceeds of a *moritorium* loan of $75,000,000. By the provisions of this contract the bonds were placed in the hands of Messrs. J. S. Morgan & Co., the agents of the Government, who, for a commission of 3 per cent, were to deliver the same in proper amounts on the presentation of outstanding interest coupons. For the payment of these bonds the duties on all custom-house importations are pledged or mortgaged by the Argentine Government, and the coupons are receivable at their face value in the payment of custom-house duties.

The syndicate of London bankers, in the interest of the fallen house of Baring Brothers & Co., were very sanguine that this scheme would not only save the Barings, but so gracefully tide over matters in the Argentine Republic that at the end of the three years' *moritorium* "everything would be lovely" again. And Argentine financiers rubbed their hands with intense satisfaction at the idea of thus staving off pay day, fully impressed with the belief that by that time the country would be "over the bar" and going out on the tide of a renewed prosperity. Indeed, the late minister of finance, in his rose-colored view of the situation, deliberately figured out on paper when the *moritorium* was signed that at the end of 1891 there would be a net surplus in the treasury of $2,165,000 in gold, at the end of 1892 a further surplus of $10,190,227 in gold, and at the end of 1893 a still further surplus of $8,100,557 in gold; thus at the end of the three years there would be a total balance of $20,456,782 in gold in the treasury with which to resume the service of the public debt. The question asked was "will he be able to do this?" and in my report I answered that "I did not believe he could." I candidly stated the inevitable conclusion I had come to, thus:

> The Argentine Government has an undertaking of tremendous proportions on its hands, and on the base on which it is now running it is my opinion that it will not succeed in sustaining the credit of the nation. I do not think the Government has, or will have for years to come, the available resources to meet the service of its obligations, with all the economies it may practice and with all the surplus it may be able to accumulate from increased tariff and

> heavy internal-revenue taxation. I do not think it will find itself in much better condition at the end of the three years' *moritorium* to resume the payment of the interest on its bonded and cédula indebtedness than it is now. The *moritorium*, which seems to have been primarily intended to help the fallen house of Baring Brothers & Co., or rather the creditors of that house, has, so far as the Argentine Republic is concerned, only postponed pay day and ultimate liquidation and quite uselessly increased the bonded debt of the nation. It would have been a public relief for the Government to have defaulted outright, and thus to have at once placed itself in a position to receive overtures from its creditors, leaving the house of Baring Brothers & Co., to have gone into bankruptcy in the usual way. For, in my opinion, the only hope of the Argentine Republic is in a scaling of the amount of its indebtedness or a refunding of it at a lower rate of interest. By one or the other of these expedients the nation may be able to "pull through," but not otherwise. Compounding the debt on some such scale as $100 for $500 or refunding the whole at a very low rate of interest might bring the annual service within the possibilities of the country; but, unless some such compromise is arranged, I do not see what present prospect there is either for the Government or for the creditors. The Argentine Republic has no other way out of its difficulties.

And to this conclusion, just as I have stated it, "hath it come at last." The second anniversary of the *moritorium* has just transpired, and the Government is no more able to meet the interest or its public indebtedness now than it was two years ago. The surplus which the late finance minister predicted was to accumulate in the treasury is not accumulating, and the deficiency is larger than it was.

The new finance minister, Dr. Romero, who has just taken charge of the treasury portfolio under President Saenz Peña, sees already the hopelessness of the situation. In a published letter dated the 25th of November and addressed to the President—thus addressed in order to give it official significance—he says that he has, upon coming into office, taken an account of the assets of the Government, and that, so far from finding any surplus set aside for the interest fund, the total available assets of the treasury delivered over to him consist of $2,417,000 in paper and $17,000 in gold. At the same time he states that the current obligations against the treasury lying on his table for payment are $19,950,000 in paper and $3,419,000 in gold; "and these figures do not include the amount required for the service of the interest on any public indebtedness or for railway guaranties." He goes on to say:

> The public debt, internal and external, of the nation is as follows: Payable in currency, $48,700,000; payable in gold, $407,000,000—to say nothing of other obligations which the nation will have to meet in the year 1893. It is useless to repeat to you that the mere statement of these figures of itself demonstrates how utterly impossible it will be for the Government to provide for the service of any such amounts. At present the greater portion of the interest on the public debt is met by the payment of consolidated bonds, that is to say, we are now paying our debts by creating daily a new and more onerous debt for the nation—a disastrous system, which it is necessary for us to put an end to at once, and in respect to which this department of the Government has already taken the initiative to do so.

This means that the *moritorium* business is to be brought to a conclusion before the end of the three years, and that the Government is going to propose a general default of its obligations in the ordinary way.

Such is the outlook of Argentine finances as I close my report. We have—

(1) An outstanding issue of cédulas, national and provincial, amounting to $362,680,000, on which the interest has not been paid for two years, and for which the banks have a *moritorium* for four years.

(2) An outstanding issue of national bank notes amounting to $283,764,862, for the redemption of which, after the default of the banks, the Government assumed the liability of the banks by a law making them legal tender (*curso legal*) in the payment of debts, said notes now being worth about 30 cents on the dollar and the bonds by which they are secured being worth about 50 cents on the dollar.

(3) A bonded national indebtedness amounting to over $400,000,000, the interest on the greater portion of which had been arranged to be paid for three years by the issue of other bonds, which arrangement the Government now gives notice that it will not continue, but, on the contrary, that it will no longer undertake to meet the service of the interest.

And now, what? Repudiation and financial chaos, or an arrangement with the foreign bondholders by which the Argentine debt will be compounded and scaled, or the whole to be refunded at a lower rate of interest? Which?

To say that the question thus presented causes no little curiosity here hardly expresses the feelings of the Argentine people. While there is intense mortification among many of them at the unfortunate dilemma in which the Government is placed, and the utter loss of credit which the nation has suffered, yet there is a general concurrence in the default proposed by the finance minister; and there will be a sigh of relief when it is understood that the worst—which has been threatened for the last two years—has been finally reached, and that the financial miseries and misfortunes of the Argentine Republic have at last touched a point from which an ultimate solution is possible.

And what say the European bondholders in regard to the prospect? Among the majority I doubt if there ever was any great confidence in the efficacy of the *moritorium* scheme, and they are asking, "How much can the Argentine Republic pay?" Others are proposing to send a commision out here to agree upon an equitable division of the custom-house receipts. Still others are just now busily engaged in discussing the great moral question, "Is the Argentine Republic honest?" And there is yet another strong, uncompromising party which is vigorously insisting upon "the pound of flesh." They argue that, according to the terms of their loan, "the revenues from the customs of the nation are hereby primarily pledged to secure the service of the interest," and that the Argentine Government can not avoid that fact. They are certainly correct in their statement of the case. When the Pellegrini $42,000,000 loan of 1884 was under discussion in Congress, this provision was distinctly pointed out, and it was so offensive to the pride not only of the people, but of the Government, that it was indignantly rejected without giving it serious discussion; but subsequently the Government, owing to the urgency of its necessities, changed its views and urged the acceptance of the provision. A very bitter debate ensued, Gen. Mansilla and other deputies insisting that the clause specially mortgaging the custom-house receipts was fraught with danger to the autonomy of the nation, and they significantly alluded to "the disastrous results of such guaranties with reference to Egypt, which unfortunate country had fallen completely into the hands of the financial center of the European powers." This loan was not signed here in Buenos Ayres, but in London; and hence is to be construed and enforced according to English laws. And the same is the case with the more recent *moritorium* loan of $75,000,000. It was not only signed in London, but the Government revenues are specifically pledged for the interest, "the coupons of which are receivable at their face value for all custom-house dues."

In this view of some of the loans there may be trouble in arranging or compounding them at a lower rate of interest. But, in case of such default or failure, it is hardly supposable that any Government—as was done in the case of Egypt—would venture to step in and claim the custody of the custom-houses. Between bankruptcy on this side of the water and importunate bondholders on the other side, the fate of the Argentine Republic can not just now be considered otherwise than as critical. Let us trust that the solution will involve no unpleasant consequences.

THE FUTURE.

Meanwhile the country itself, in spite of the financial embarrassments of the Government, is moving forward with no uncertain steps to regain its former position of prosperity. Of course, in every department of industry and in nearly all branches of trade it is still handicapped by a depreciated, fluctuating currency and a general want of faith in the administration of public affairs, to say nothing of the low ebb which yet continues in commercial credit; but the people have made great progress during the last year in extricating themselves from the consequences of the crisis, in accommodating their affairs to the depreciation of values, and in the organization of business upon a gold basis. There is no doubt that the situation has greatly improved in these respects, and that the outlook is full of encouragement. Everywhere are to be seen the signs of increased and increasing industrial development and activity, and there is a better tone and a more buoyant spirit in all business movements. These are the ultimate and the best hope of the country, and while they continue to give such promises to the future there need be no fear that the Argentine Republic will not somehow rise superior to its troubles.

E. L. BAKER,
Consul.

UNITED STATES CONSULATE,
Buenos Ayres, December 26, 1892.

MEXICAN TARIFF MODIFICATIONS.

REPORT BY MINISTER RYAN.

I have the honor to transmit herewith, in text and translation, a copy of an executive decree of the 22d ultimo, published in this day's issue of the Diario Oficial, amendatory of the Mexican tariff law of June 12, 1891.

It will be observed that this decree takes effect on the 15th of next month, save in the case of ginned cotton (division 125), which will pay the new rate on and after the 15th of the current month.

THOS. RYAN,
Minister.

UNITED STATES LEGATION,
Mexico, March 2, 1893.

DECREE.

[Inclosure in Minister Ryan's report.—Translation.]

ARTICLE 1. The tariff of the general ordinance of the maritime and frontier custom-houses of June 12, 1891, was modified and complemented in the following form and tenor and the divisions hereinafter specified:

Table showing the tariff modifications.

[By "net weight" is understood the intrinsic weight of the merchandise without the casings, packages, or wrappings. By "legal weight" is understood the weight of the goods, including only the (interior) casings, wrappings, casks, boxes of cardboard, wood, or tin, in which they may be packed inside of the exterior box which serves as the outside (or general) receptacle. When goods taxed on the legal weight have no interior covering, but come simply with an exterior package, the intrinsic weight of the merchandise shall be considered the legal weight. In ascertaining the legal weight no account shall be taken of the straw or shavings with which the articles may have been packed within the exterior case, nor of the weight of the latter. By "gross weight" is understood the weight of the merchandise with all its wrappings and cases, interior and exterior, without allowance for packing, filling, or hoops. When a package contains several articles taxed on the gross weight, the custom-house will apportion the tare among them according to their respective legal weights. Articles which are dutiable on the gross weight shall pay upon the total weight of the merchandise when they come without wrappings or packings or are contained in cases which are assessable. When fabrics having fringes are dutiable on the square meter, the measurement shall include such fringes. If they are dutiable according to weight, the weight must include that of the fringes.]

Division.	Articles.	Unit of rate.	Rate.	
			New.	Old.
3a	Stud horses and mares for breeding		Free.	$30.00
4	Hogs and young pigs	Kilogram	$0.01½	.03
24	Bone in gross and scraped or in powder	Kilogram, legal	.03	.10
25	Wool in fleece	Kilogram, net	.08	.10
26	Carded wool	do	.12	.15
27	Ivory in the rough, and scraped or in dust	Kilogram, legal	.08	.25
28	Mother-of-pearl in the rough, filings, or scraps	do	.05	.25
32	Vicuña hair, hare and rabbit skins, and hair of musk-rats, etc.	do	1.75	2.00
39	Spanish fly	do	.50	1.00
51	Albumen of eggs and blood	do	.05	.10
53	Strong glue	Kilogram, gross	.05	.10
54	Coral in rough and in dust	Kilogram, legal	.08	.25

Table showing the tariff modifications—Continued.

Division.	Articles.	Unit of rate.	Rate.	
			New.	Old.
59	Gelatin	Kilogram, legal	$0.10	$0.15
61	Fish glue	do	.10	.15
64	Cod-liver oil	do	.10	.10
71	Belting, of leather or of rawhide, for machinery, when affixed to the same.	Kilogram, gross	.01	Free.
122	Stearin candles or tapers	do	.18	.20
123	Tallow candles or tapers, pressed or otherwise	do	.18	.20
125	Cotton, ginned	do	.07	.08
128	Hemp, flax, ramie, and other vegetable fibers not specified, crude or hackled.	Kilogram, legal	.02	.05
128*a*	Jute, crude or hackled	do	.01	New.
148	Medicinal seeds and berries	do	.10	.20
148*a*	Medicinal seeds and berries in dust, scraps, or pulp	do	.20	New.
158	Guinea broom corn or millet	Kilogram, gross	.02	.03
164	Roots, barks, flowers, and medicinal leaves	Kilogram legal	.10	.20
164*a*	Roots, barks, flowers, and medicinal leaves in powder, scrapings, or pulp.	do	.20	New.
179	Camphor	do	.25	.50
231	Cable of aloe, hemp, and similar fibers, when they measure 3 centimeters in diameter or more.	Kilogram, gross	.02	Free.
233	Baskets of jute, agave, hemp, and flax	do	.01½	Free.
240	Young tobacco and chewing tobacco	Kilogram, legal	1.00	.70
241	Tobacco, sifted or in fiber, fine cut, for manufacture of cigarettes.	do	1.50	1.25
242	Tobacco in powder or snuff of all kinds	do	3.00	2.75
243	Cut smoking tobacco	do	1.50	1.25
244	Tobacco made into cigarettes	do	2.00	1.50
245	Tobacco made into cigars	Kilogram, net	7.00	5.50
260	Crucibles of platinum	Kilogram, gross	.01	Free.
295	Zinc in ingots, filings, grain, etc	do	.01	.05
355	Asbestos in fiber or powder	do	.01	Free.
361	Carbonate of lime or Spanish white	Kilogram, 100	.50	Free.
364	Emery in powder or grain	Kilogram, gross	.01	Free.
386	Vaseline	Kilogram, legal	.10	.15
453	Curtains, bedspreads, etc., of point lace or of cotton lace	do	4.00	6.00
454	Cotton and point lace of all kinds and fabrics thereof not specified.	do	6.00	4.00
474*a*	Counterpanes, quilts, coverlids, curtains, table covers, shawls, antimacassars, and pillow cases of cotton, without embroideries.	do	1.00	New.
474*b*	Counterpanes, quilts, coverlids, curtains, table covers, shawls, antimacassars, and pillow cases of cotton, with embroideries.	do	1.50	New.
504	Curtains, bedquilts, etc., of lace and point of linen	do	5.00	New.
505	Lace and point of linen of all classes and manufactures thereof not specified.	do	7.00	5.00
527*a*	Curtains, bedspreads, quilts, table covers, antimacassars, and pillow cases of linen or hemp, unembroidered.	do	1.25	New.
527*b*	Curtains, bedspreads, quilts, table covers, antimacassars, and pillow cases, of linen or hemp, embroidered.	do	1.75	New.
552	Woolen lace and net goods of all kinds and manufactures thereof.	do	8.00	8.00
580	Woolen felt in endless band, when attached to machinery	Kilogram, gross	.01	Free.
614	Cotton goods or goods made of linen or wool, forming designs of silk on basis of other material.	Kilogram, net	3.50	2.50
615	Goods of silk, with cotton mixed, or linen or wool, or *vice versa*.	do	5.00	5.00
615*a*	Goods of silk, with mixture of cotton, linen, or wool mixed with silk, or *vice versa*.	do	7.50	New.
615*b*	Goods of cotton, linen, or wool with silk in the basis and texture, provided the silk is not in excess of the other materials.	do	5.00	New.

Table showing the tariff modifications—Continued.

Division.	Articles.	Unit of rate.	Rate.	
			New.	Old.
615c	Goods of cotton, linen, or wool, with silk in the basis and texture, provided the silk is in excess of the other materials.	Kilogram, net......	$7.50	New.
636	Silk linings mixed with cotton, linen, or wool, sewed or in pieces, for parasols, umbrellas, and sunshades.	......do..................	9.00	$5.00
637	Switches of silk, even with cotton, linen, or wool mixture or ornaments of beads or baser metals.	......do..................	9.00	9.00
652	Acetates of aluminium, ammonia, lime, copper, chromium, iron, lead, and soda.	Kilogram, legal...	.05	.08
653	Arsenious acid..	......do..................	.02	Free.
654	Chloridic, sulphuric, and sulphurated acids.........................	Kilogram, gross...	.01½	.03
655	Acetic, nitric, oxalic, and pyroligneous acids....................	Kilogram, legal...	.03	.05
656	Carbolic acid..	......do..................	.02	Free.
658	Acids in crystal or in powder not specified........................	......do..................	.40	1.00
668	Sugar of milk..	......do..................	.25	.40
677	Alkaline cyanides..	......do..................	.02	.08
683	Chlorides of lime, soda, and potash..................................	Kilogram, gross...	.01	Free.
697	Hyposulphite of soda...	......do..................	.01	Free.
699	Concentrated lyes..	......do..................	.01	.03
702	Nitrate of silver...	Kilogram, legal...	2.00	8.00
704	Patent pharmaceutical products..	......do..................	1.00	.50
707	Permanganate of potash..	Kilogram, gross...	.02	Free.
710	Tin putty..	......do..................	.03	Free.
712	Common or table salt...	......do..................	.02	.03
716	Saltpeter or nitrate of potash and of soda...........................	......do..................	.01	Free.
718	Caustic soda and potash..	......do..................	.01	.03
719	Sulphates of iron, copper, and ammonia............................	......do..................	.01	Free.
720	Sulphates of soda and magnesia and borate of soda............	......do..................	.04	*.03
721	Sulphite, bisulphite, and trisulphite of lime and of soda......	......do..................	.01	Free.
722	Sulpho-olein	......do..................	.05	.07
727	Poison for hides...	Kilogram, legal...	.02	Free.
728	Medicinal wines, even if patented....................................	Kilogram, net......	.40	.25
729	Iodine...	Kilogram, legal...	.50	1.00
731	Spirits in clay or glass bottles..	Liter.....................	.55	.50
732	Spirits in wooden vessels..	......do..................	.40	.30
736	Bitters..	Kilogram, net......	.35	.30
737	Liqueurs...	......do..................	.35	.25
741a	Foamy wines...	......do..................	.50	New.
785	Apparatus for copying manuscript.....................................	Kilogram, gross...	.05	Free.
861	Rubber belting for machinery when imported attached to machinery.	......do..................	.01	Free.
862	Belting for transmission of motion, attached to machinery...	......do..................	.01	Free.
888	Cases and implements of all kinds, with or without ornament, and not of gold, silver, or platinum.	Kilogram, legal...	1.20	.75
899	Soap without perfume...	Kilogram, gross...	.20	.25

* Legal.

ART. 2. Merchandise, subject of divisions 571, 573, 593, 595, 606, 611, 634, and 648, will be taxed as specified, even though with beads, ornaments, etc.

ART. 3. Divisions 258, 363, 455, 456, 506, 507, 553, 554, 555, 561, 572, 574, 594, 596, 620, 621, 633, 635, 647, and 649, as well as explanatory notes Nos. 150 and 151 of the tariff, are hereby declared null and void.

ART. 4. Explanatory notes numbered 39, 52, 81, 164, 167, 223, 249, 291, and 294 are hereby modified in the following form and tenor:

No. 39.—This division includes only white or black cod-liver oil, prepared and presented not in patent-medicine formula.

No. 52.—This division includes only seeds and berries for medicinal uses, fresh or dried, which have, however, not been reduced to powder or scrapings, not pressed into pulp or cake.

No. 81.—Roping and fiber of hemp, jute, aloe, and other vegetable fibers, with the exception of cotton, are included in this division, provided their diameter does not reach 3 centimeters.

No. 164.—Dress pieces must fit the conditions set forth in division 21 of the general regulations for the application of the tariff; it being borne in mind that the portion of the pattern considered as ornamental, even though not subject to fixed rules, is, however, definite and determined in each case, and is governed no less by the models descriptive of the dress than by the further consideration that the ornament is purely an accessory, and, in such capacity, it should represent but a small fraction as compared with the rate (of duty) applicable to the fabric of the dress. The specification "woolen cloth with mixture of silk in the texture," as employed in division 573, expresses those woolen cloths that have only a small proportion of silk in stripes, squares, or other pattern, but in such proportion that the wool is the principal material. The expression "silk cloth with mixture of cotton, linen, or wool," employed in division 634, refers to such fabrics wherein silk is the principal material of the warp and woof.

No. 167.—In the classification made of the cloth of the dress, the lining of ready-made clothing should not be taken into account. For better understanding it should be borne in mind that linings mean stuff that covers the inside surface of a dress piece, but not that which edges the skirts or overskirts with lace, etc., for such stuff is included in the classification of the dress cloth. The expression "woolen cloth with mixture of silk in the texture," employed in division 595, designates those woolen cloths which have only a small proportion of silk in stripes, squares, or other patterns, but in such proportion that the wool is the principal material in the cloth. The expression "silk cloth with mixture of cotton, linen, or wool," employed in division 648, means such cloths wherein silk exceeds in the woof.

No. 223.—This division refers to all such medicines as are concocted by a druggist and not a chemist, being compounds prepared according to the rules of pharmacy for application thereof without any change in their form, as pills, elixirs, sirups, balsams, capsules, etc., provided they are in each case a speciality of some maker or of some manufacturer. This classification shall not include chemical products, even though patented, presented in their native condition as *materia prima* for the use of pharmacists, for employment in each case in making of prescriptions.

No. 249.—The wines here referred to are the table wines, whether they be white, red, dry, or sweet, with the exception of effervescent wines, even when other aromatic vegetables are added, as in the case of the wine called "vermouth." Pure wines, with a small admixture of tannin, such as the "San Rafael," the "Bagnolo St. Jean," and like liquors, shall be regarded as natural or table wines. Only those wines to which are added medicinal properties which will render them improper for table use as ordinary wines shall be classified among real medicinal wines.

No 291.—Bands for transmission of power shall pay at the rate of 1 cent per kilogram (gross) when imported with the machinery to which they are attached. Bands or belts will be considered as imported with their respective machinery whenever they are imported together with the machine or apparatus they are to drive, or in combination with a set of shafts and pulleys to which they can be applied, bearing in mind that the bands or belts can in no case be wider than the pulleys they are to drive.

No. 294.—Cases (for toilet articles, etc.) are considered as of wood or of card, lined with cloth or leather, or padded, as well as such as are of varnished and polished woods, lined inside with leather or cloth, and adapted to hold one or more articles. "Nécessaires" are such cases as are supplied with articles for the dressing table or bureau, for sewing or for such like uses, and which are not expressly designated in the tariff. When any of the aforementioned cases have ornaments of gold, silver, or platinum, they shall be comprehended under article 856 of the tariff. However, when such cases aforesaid contain jewelry or manufactures of gold, platinum, or silver, there shall be collected thereon the special duties assigned to cases and contents.

ART. 5. To the group of explanatory notes now attached to the tariff of the general ordinance of custom-houses of June 12, 1891, is added the following in relation to the new division 3*a* of the tariff:

No. 308.—Pure-blooded horses and mares, imported for breeding purposes, shall only be considered as exempt from import duties when they enter accompanied by their pedigree, legally issued by the proper parties, and in view thereof the treasury department shall authorize the exemption from duties.

ART. 6. The treasury department shall modify the vocabulary attached to the general customs ordinance in force in all such parts as may be needful in order to adapt the same to the modifications and additions to the tariff subject of this present decree.

ART. 7. This decree shall take effect on the 15th day of April next, provided that vessels bringing merchandise effects enumerated therein anchor in the port of destination after 12 o'clock midnight of the 14th day of said month of April or enter the frontier custom-house after such midnight hour, being then subject to the care of the customs officials. Exception is had from this ruling in the case of ginned cotton, the new rate whereon shall go into effect from the 15th of March next.

BEIRUT-DAMASCUS STEAM TRAMWAY.

REPORT BY ACTING CONSUL KHOURI.

On Thursday, the 8th instant, about midday, the inauguration of the works of the steam tramway between Beirut and Damascus was celebrated with unusual pomp amid the enthusiastic rejoicing of the population of this city. The ceremony took place at a spot situated at a distance of about half an hour from Beirut, adjacent to the frontier which separates this vilayet from Mount Lebanon, and in the presence of Khalid Bey, governor-general of Beirut, and the high functionaries of Beirut and Lebanon, attended by a large party of the foreign and native society. On the spot in question a magnificent pavilion having the form of a dome was erected, over which hundreds of Turkish flags, displaying the crescent and the star, were gayly floating between rows of myrtle garlands studded with flowers. At the hour fixed the vali gave the first stroke with a silver mattock, which had been specially ordered for that particular occasion. A fervent prayer was recited by the sheik of the Moslem clergy. A number of sheep were then sacrificed, as is usual on similar occasions, and distributed to the poor, while the military band played some of its best selections. After this, Hassan Effendi Beyhum, the concessionaire, delivered a well-conceived address, in which he set forth the numerous advantages that may be derived from the construction of railroads and steam tramways, which contribute to the spread of wealth in the country and are like the veins which convey blood into different parts of the human body to nourish them and make them grow.

In this connection I may mention that Hassan Effendi Beyhum, who is the Ottoman subject in whose favor the concession was granted by the Sultan, has recently transferred his rights in that business to a company known as the "Société Ottomane des chemins de fer économiques de Beyrouth à Damas" (Ottoman Company of Economical Railroads from Beirut to Damascus). This new title was adopted by the company operating the steam tramway from Beirut to Damascus, as it has recently been united with the Damascus Tramways and Economical Roads Company in Syria.

The concession above referred to comprises: (1) The construction and working of a line of steam tramway, about 125 kilometers long, forming a direct connection between the cities of Beirut and Damascus; (2) the construction and working of the prolonged and branch lines which may be ultimately added to the principal line; (3) the privilege of buying the concession of the Carriage Road Company and establishing the steam tramway on all or part of the existing road, and, finally, the possession of the properties and revenues of the said road until the expiration of the concession.

The concession for the steam tramway in question has a duration of ninety-nine years. The capital is fixed at 10,000,000 francs ($1,930,000), and divided into twenty thousand shares of 500 francs ($96.50) each. Besides this capital the company can in future issue bonds according to the needs of the enterprise. The maximum time for the completion of the works is fixed at four years, but the engineering studies which are at present in process lead to the hope that three years will be fully sufficient.

From the annual net profits will be deducted: (1) The amount required for the payment of 5 per cent interest on the capital paid to all the shares without distinction; (2) 5 per cent for reserve funds.

The surplus will be distributed in the following proportion: Fifteen per cent to the administrative council and 85 per cent to the shareholders as dividend.

During the term of the works the shares will be entitled to an annual interest of 5 per cent on the capital. That interest will be deducted from the revenues of the road and, if insufficient, from the social capital and be charged to the account of "preliminary construction." There are no privileged founders' shares in this new company.

The annual profits of the steam tramway line from Beirut to Damascus, including the income of the Hauran line, are estimated at 1,500,000 francs ($289,500), not counting the income from passenger rates and the accessory revenues, which in all probability may not give less than 300,000 francs ($57,900) per annum.

The steam tramway line from Beirut to Damascus will be extended by the additional railway line from Damascus to the Hauran, now in process of construction. It is also expected to be prolonged, in the near future, toward the north in the direction of Homs, Hamah, and Aleppo. Under these circumstances and conditions, the steam tramway will constitute a main artery of transportation into which will flow all the traffic of the regions lying to the north and south of Damascus, which is its natural mart, and will no doubt bring to both Damascus and Beirut elements of prosperity which will cause them to become the first trading cities of the East.

CONSTANTINE KHOURI,
Acting Consul.

UNITED STATES CONSULATE,
Beirut, December 15, 1892.

RESOURCES OF THE LOWER RIO GRANDE.

REPORT BY CONSUL RICHARDSON, OF MATAMOROS.

PUBLIC HEALTH.

The summer of 1892 was regarded as one of unusual severity. The heat was depressing. There were heavy rainfalls throughout northeastern Mexico, so that the Rio Grande was over its banks, filling the *resacas* and *lagunas*. There was comparatively little rain here—not enough to break the drought, but enough to freshen the grass and relieve the starving herds.

The year has been one of remarkable healthfulness when judged by the mortality records. And this is surprising, for during the autumn, as a result, doubtless, of high water, 75 per cent of the people were sick with intermittent fever (dergue, or, as some physicians have been inclined to term it, "la grippe"), with no fatal results. After having been here two years, I am inclined to reiterate what I have stated before, that this is a most beneficent climate. With the same sanitary conditions prevailing here that prevail in more-favored cities, the record for healthfulness would equal or surpass that of cities like San Diego, Cal.

The advent of cholera in New York harbor found this city poorly prepared to meet it. The Mexican indifference to disease has frequently been commented upon. Smallpox is as little regarded as chicken pox with Americans, while yellow fever is accepted meekly as a dispensation of Providence that it is useless to combat. Not so with cholera; it creates a panic quite as quickly as with us. Great solicitude was felt here lest the alertness of the authorities at the city of Mexico and of the State of Texas would precipitate a quarantine here. A meeting of the quarantine and municipal officers of both Brownsville and Matamoros was called to meet at the American consulate, at which a plan of coöperation was agreed upon by which the two cities should be placed in a good state of sanitation and the necessity, as far as possible, of quarantining against each other might be avoided. This plan was quite effectively carried out in both cities, so that we have a condition of cleanliness unknown for years. Ordinarily Matamoros is exceedingly filthy, and it is only because of the kindliness of the climate that pestilence has been kept at arm's length.

AGRICULTURE.

There is nothing to report under this head of an encouraging nature. The rains that prevailed about here did not come in time to save crops, either first or second, nor in sufficient quantity to put the soil in good condition for the next. In a word, the drought still remains unbroken, although the grass has been freshened and the *resacas* filled with water, so that the mortality among stock has been arrested and their preservation for some months to come assured. Where there has been irrigation the crops have been as good as usual, but were a failure elsewhere. On this account there has been a marked decrease in the acreage of tilled land. All the principal food products have been imported, nearly all of which might have been produced here at very remunerative prices with even the most primitive methods of irrigation. This is a valley of extraordinary fertility, destined to maintain a large population when the means at hand are employed with ordinary intelligence and enterprise. There appears to be some increase in the use of American agricultural implements. The American plow is now in general use. Occasional windmills are seen. Grass is still cut with knives. The American scythe might find a market here. Barbed-wire fences are extending in every direction.

There is no improvement in the quality of stock, there being little incentive to do so when the problem has been to keep the hardy native stock alive.

In my various reports I have referred to the productions of this valley and the State of Tamaulipas, a region that in former times suffered no prolonged inconvenience from lack of rain, but which, under apparent changed meteorological conditions, will require for the future irrigation to insure crops. There is no question whatever about the successful production of the four staples—corn, cane, cotton, and tobacco. In order that I might present some authoritative statement concerning these products, I addressed a note of inquiry to Col. J. G. Tucker, who owns and operates a large ranch on the Rio Grande at Santa Maria, Tex., and who has been most successful in their production.

Corn.—In respect to corn, very little is to be said. It is the staple product. With water large crops are certain. These valley lands are all alluvial, and consequently exceedingly fertile. They produce, with ordinary culture, from 65 to 75 bushels of shelled corn per acre from the first planting, which is made about the middle of January. As soon as this crop is gathered the land is plowed again for the second crop, which is planted in August or September and gathered in December, and which can be made to yield from 30 to 35 bushels per acre. All this is conditioned upon water and cultivation. At the present rates in Mexican money of $7.50 per carga of 312 pounds, or the ordinary rates of $3.50, corn cultivation, with labor at less than 50 cents per day without board, is very profitable. The growth of the stalk is enormous. The ear is fully 5 feet above the ground.

Cotton.—With ordinary care and without artificial fertilization, these lands will produce from 450 to 500 pounds of lint cotton per acre. This average, however, is not at present attained for lack of proper cultivation. The actual production under present conditions is 300 pounds. This difference is due in a large measure to the character of the labor. This section is especially well adapted to the production of sea-island cotton, experiments in which were made by Col. Tucker in 1891. He made 300 pounds of lint per acre, which sold in Liverpool on a low market for 19 cents per pound, the same quality of cotton bringing in the market of 1890 from 28 to 30 cents per pound. Ordinary cotton remains for three years after planting in full vigor, growing from the root, after which time it needs to be plowed up and replanted. The sea-island cotton lasts only one year.

Cane.—In the opinion of the United States Government inspector of the sugar industry the best sugar made in Texas is made on the lower Rio Grande. The estimated yield of cane is 40 tons per acre. When once planted, the cane remains good for at least eight years, and grows to an enormous height. Col. Tucker reports stalks of cane having thirty well-matured joints, some of which measure fully 6 inches in circumference, thus giving this section a great advantage over other cane-producing lands. No other country, so far as known, when labor is considered, can produce more or better cane per acre than this valley. With the diffusion process this cane will produce 95 per cent of sugar. Under the inspiration of the bounty clause in the McKinley law fresh fields of cane have been planted on the Texas side of the river, and great improvements made in machinery and facilities for the manufacture of sugar. All planting of cane and expense in improving the manufacture of sugar have been suspended, and will remain suspended, until the attitude of the new Congress toward sugar is ascertained.

Tobacco.—For a long time tobacco culture has been considered practicable here; but, I understand, no serious attempts at its cultivation had been made until 1889, when Col. Tucker began experimenting with Habana tobacco. He has demonstrated to his own satisfaction and that of tobacco experts in New York and Pennsylvania that the tobacco produced on his plantation is the equal of any Habana tobacco imported into the United States. He has just shipped to New York the product of one acre, first cutting, which weighed, clear of packing boxes, 1,600 pounds. Col. Tucker says:

> There is such a great future for this product here that I am almost afraid to write of it lest my veracity be called in question; nevertheless I will give you plain facts. I was delayed this year in transplanting fully three months in consequence of having sent to Habana for the "Vuelta abajo" seed. The seed came late, and after being sown it did not germinate. I did not raise one plant from a pound of seed. After obtaining other Habana seed in the United States, which germinated fully, I transplanted May 11, and August 11 I made my first cutting of tobacco (1,600 pounds, which I have just shipped). On October 11 I made my second cutting, which yielded about 800 pounds, and the third crop from the same acre is growing rapidly, having leaves at this time (November 20) from 6 to 8 inches in length, and which will yield at its cutting probably about 500 pounds. I am now cutting 10 acres planted in August, which promises a full yield, and, should there be no frost, I will get a second crop.

Lieut. Chatfield, U. S. Army, whose work on "The Twin Cities of the Border and the Country of the Lower Rio Grande" is now, I believe, in press, and who has made a careful study of all the conditions necessary to tobacco culture, is of the opinion that in no country can it be produced so perfectly or profitably as here. The required conditions in the production of tobacco here, as in all the other soil products, are water and enterprise. The Rio Grande is at hand and can be tapped at any point. Enterprise only is lacking.

Salt.—During the past year salt has been added to the exports from this district, but exported, however, mainly to other Mexican ports, especially Tampico and Tuxpan. In the State of Tamaulipas, at distances varying from 15 to 46 miles from Matamoros, are several salt lakes, or *lagunas*, from which during a dry season large quantities of salt are taken by a simple and inexpensive process. The cost of gathering is 50 cents (Mexican coin) per carga. To this is added 18 cents per carga of State tax. The cost of transportation from the *lagunas* to Matamoros is from $1 to $1.50; and from here to Tuxpan via Brownsville, Tex., about $2, in addition to warehouse fees, which were exacted under a decision of the collector of customs holding that the salt was imported for exportation, and not in trust. The cost of transportation direct from Bagdad to Tuxpan by schooner is only $1.50 per carga. The market price in Tuxpan is $8 and $9 per carga at wholesale, or $12 and $13 retail. It is doubtless now the most remunerative industry here, and is likely to remain so for some time to come. The mode of gathering is very simple. Two men carry a common wooden box about 2 feet square and 1½ feet deep, in which they scoop up the brine and carry it on shore, where the small quantity of water is drained off and the salt dried. The cost is almost nothing. Matamoros and Brownsville ought to have had the benefit of this industry, and would, had it not been for the adverse custom-house decision referred to. There have been brought to Matamoros this year by Mr. Francisco Armendaiz about 1,200,000 pounds of salt from these lakes, of which 600,000 pounds have been shipped. He already has about 9,900,000 pounds at the lakes, while other persons have 6,000,000 pounds all ready for shipment.

LABOR.

The price of labor is a most important consideration. It is cheap and, under good supervision, effective. In order to get the best results from laborers, they must be handled intelligently and sympathetically. The overseer or manager should live among them and speak their language. They are uniformly polite and generous, and, when well treated, make their employer's interests their own. When brutally treated, as is so often the case, they become sullen and worthless. The price of labor is only 50 cents (Mexican coin) per day, without board, on the Texas side of the river and much less here. Climatic conditions are such that the laborer requires very little for clothes or shelter, while meat is cheap and vegetables can be produced for almost nothing. Much has been said about the worthlessness of the Mexican laborer. He does not intend to be worthless. He is reared in a land of few wants and great division of labor—a land of genial, not to say enervating, climate. He is not taught to be skilled, but is willing and does the things he understands readily and well. The Mexican has natural manual skill. He can be taught to do well the work in the larger industries of the day, as well as that peculiar skilled work for which he is famous. He practices economy, because he is obliged to do so, and he might be taught industry and thrift from choice when made to see the advantage of it. Thus far he has been found most serviceable to his employer when kept in debt to him. His love of gaming and other pastimes renders him uncertain help when he has been fortunate enough to accumulate a few reals above his daily needs.

IRRIGATION.

In my last report I referred to the agitation of schemes for irrigation and new industries. I am not able to note any real advance. There is, as usual, a good deal "in the air." Endeavor has been made to form a company with a capital of $150,000 for irrigating the Mexican side of the Rio Grande below Camargo from the San Juan River. The feasibility and inexpensiveness of the scheme makes it very attractive. I can not learn, however, that there has been any tangible advance made. The promotion of any schemes for development in this country is very much handicapped by antiquated laws, and especially on the frontier by laws respecting the acquisition of real estate by foreigners. Any plan of extensive irrigation involves facile transference of lands and rapid settlement. The laws of Mexico do not secure this, nor is it likely to be insured by any governmental concession at present. It is a pity that something in this direction can not be accomplished, for I never saw a fairer country than that included between the San Juan and the Rio Grande rivers. There is a vast tract of land thousands of acres in extent capable of supporting a large population and furnishing it with all the necessaries and delicacies of life. Were it anywhere in the United States it would be dotted with cities and villages and teeming with wealth. Even here it will not long remain isolated and undeveloped.

There is no reason whatever why soil similar in character and with a climate identical to that on the Texas side of the river should not be opened up at once. There are from Laredo to Point Isabel rich irrigable lands, including more square miles than the State of Massachusetts. Water can be provided for it either directly from the river or by storage systems, or a combination of both.

Col. Carthell has, I believe, pronounced irrigation from some point above Laredo for the whole valley entirely feasible, sufficient capital and suitable concessions and protection from the two countries being the only *desiderata*.

For several weeks past Lieut. W. H. Chatfield, of the U. S. Army, representing some capitalists, has been in Brownsville endeavoring to secure concessions and right of way from owners of land on the Texas bank of the Rio Grande in Starr, Hidalgo, and Cameron counties for irrigation by the construction of ditches and levees and the use of *resacas* and *lagunas* for reservoirs. The plan is to begin with the storage system, making storage reservoirs out of the many *resacas*, *lagunas*, and depressions which abound in this country and are filled with water for a distance of over 50 miles from the Rio Grande at every overflow of the river. A large amount of this water finds its way to the Arroyo Colorado and through it into the Gulf of Mexico. Normally there is an overflow two or three times a year; but for four years there has been but one, owing to the prolonged drought along the entire valley and the use of the river for irrigation in New Mexico and about El Paso, an item for which allowance must be made in this system. The plan is to levee the *resacas* and *lagunas* and construct dams across the upper portion of the Arroyo Colorado at various points high enough above the level of the lands to flood the lower valley. These dams are to be graded one above another, so that the lands can always be flooded from the nearest point. It is not proposed to take water from the river during a long drought or when it is at a low stage, but to store water when the river is high or overflows against a time of drought. Droughts in this region have been entirely local. A dry season here does not prove one 100 miles upriver. One of the greatest overflows in years took place last summer when there was scarcely any rain here. The scheme is practicable, inexpensive, and will insure water for any time save that of exceptional drought. To many the scheme appears chimerical, but any scheme would be scouted by these same men that called upon them to surrender any part of the increase in wealth the scheme would insure or would change their methods of trade and living.

RAILROADS.

There has been a renewal of interest in a railroad from Laredo to Brownsville, occasioned, no doubt, by the disturbed state of the border and the belief that the shriek of the locomotive would drive out the "irresponsible and trouble-making" Mexican-Americans who infest the chaparrals, thus affording the best protection to both republics. There is nothing but talk, however, and the road will not be built, save by Laredo people, whom it will materially benefit, or the Government of the United States, which would find it the most inexpensive way of policing its frontier.

EDUCATION.

The influence of the drought and depreciation in silver is felt everywhere. The schools of the city are seriously crippled. One-half of them have been closed, and, as a consequence, the other half have been overcrowded, while the mission schools are full. Of course, under these circumstances improvement is out of the question. One of the chief obstacles to good educational work is the scarcity of good text-books that can be sold cheaply. Here is a field for some enterprising American publisher. The Appleton series in Spanish are made up too well and cost too much. These people are extremely poor, and text-books for their children must be furnished at the lowest possible prices. It seems to me that good elementary books can be prepared and printed upon cheap paper with manilla paper covers that will advantageously replace the books now in use at about the same rates. This might be done by enterprising American publishers through a branch house established in some convenient Mexican center. There are no text-books published that so well supply the need of Mexico and fit its present stage of development as the American, but they must be put up in shape to meet the slim purses of the people.

CONCLUSION.

It is my regret that I have not been able to furnish statistical data respecting this valley, but there are none to be had. I can only report upon it in a general way, and quite as much about the American side of the river as this. The valley is a unit; what affects one side will affect the other.

My reports all read very much alike. They are made up of discussions of schemes as yet on paper or "in the air" and of praise of the country, of which too much is not likely to be said. I only wish that I might write some word that would invite enterprise and capital into this valley that would establish a new order of industrial things.

JNO. B. RICHARDSON,
Consul.

UNITED STATES CONSULATE,
Matamoros, January 14, 1893.

BERMUDA.

REPORT BY CONSUL SULLIVAN, OF HAMILTON.

The commercial relations between Bermuda and the United States are unusually close and intimate. Omitting the tariff in both countries, Bermuda is commercially one of the States of the Union, and there is no difference worthy of special mention in the trade between Bermuda and the United States and the trade between the different States of the Union. To a large extent the same articles are used here that are used there, and what is good there is good here.

PACKING.

The preparation, decoration, and packing of imports from the United States are almost without exception satisfactory to the importer and to the consumer. The preparation is as perfect as is expected, the decoration is always attractive and generally appropriate, and the packing is so skillfully done that every inch of the available space is utilized.

In the line of dry goods the United States send bleached and unbleached calicoes, fancy striped calicoes for dresses, Canton flannels, corsets, and linen collars and cuffs. These goods cost less in the United States than in any other country. Boots and shoes are imported from the United States. They are as well made and as cheap as those imported from England; but, this being a British possession, everything else being equal, English styles in foot gear and in everything else are preferred by Bermudians and even by rich Americans who come here to enjoy the climate during the fashionable winter season. From England come worsted goods, ready-made clothing, hats and caps; silk, cotton, and woolen hosiery; embroidery, trimmings, etc. A large trade is done in these goods when visitors from the United States lay in a heavy stock of clothing. English products on which no duty is paid are undoubtedly cheaper than American, but that they are superior to similar goods manufactured in the United States has not yet been demonstrated. Bermuda merchants complain that dry-goods invoices are not made out as clearly and distinctly in the United States as in England.

Carriages, wagons—in short, all kinds of vehicles—and the materials and tools for repairing them come from the United States.

Drugs are imported from the United States, and also from England. It is charged that some American drugs are adulterated, and such inferior goods, whether from the United States or elsewhere, will not find a permanent and profitable market here. American firms of high standing whose reputation for honest dealing and reliable drugs is established do a large business. Glassware belonging to the drug trade can not be made better anywhere than in the United States, whence all of it used here is imported.

Bermuda is wholly dependent on the United States for food. A suspension of commercial intercourse would produce much inconvenience and suffering, and perhaps cause a famine in the island. All kinds of food and food products, except fruit from the West Indies and fish caught in the surrounding seas, are imported from the United States.

Paints and painters' utensils and supplies, varnishes, oils for illuminating and lubricating purposes, all kinds of glass and glassware, lamps and fittings, cardboard, pasteboard, and paper bags come from America. Some note paper and all English official paper is brought from England. Wall paper is rarely used; it will not stick on the porous and damp walls.

All kinds of furniture and housekeeping articles for use and decoration come from the United States. Upholstery decays rapidly in this humid atmosphere, and is not, in this climate, as comfortable and serviceable as wooden ware, with which the houses are neatly, but simply, furnished. Most of this furniture is manufactured at Grand Rapids, Mich.

General and shelf hardware, cut nails, axes, garden implements, locks, bolts, and hinges are imported from the United States. England supplies cutlery, wrought nails, plate iron, corrugated iron, and steel. Hemp and flax are not manufactured in any form. The few ropes needed come from the United States. Jute bagging is not used. Leather and rubber goods in all forms are of American manufacture. Few agricultural implements are wanted here; those that are come from America. So do the few hoisting apparatus used. Sewing machines are of American manufacture.

There is a growing trade in American whisky, but Irish and Scotch are in greater demand. The consumption of lager beer has increased quite rapidly of late among the native population. More care should be exercised in packing it for shipment to this market. It is imported from the United States only. The garrison uses English and Scotch beers entirely, the soldiers and sailors from the British Isles preferring the ale and porter to which they were accustomed in their native countries. The wines of California have to compete on equal terms with what are esteemed, whether justly or not, as superior wines from the old world. They stand no show whatever here, unless the quality improves or the prices are greatly reduced. The cost of transportation from New York is only a trifle less than from London—too small to be considered. No standard exists for comparing prices.

At least three-fourths of the pianos and organs sold are of American manufacture, and the prospect is that the trade will soon be monopolized by the

United States. The idea that the wood entering into the construction of American instruments does not wear in this climate as well as the English material is not so prevalent now as formerly, and American instruments, being cheaper than, and superior in workmanship and finish to, the English, are proportionately popular. Twenty-five years ago American instruments were unknown here. Now they are favored and purchased by persons who need new ones. The damp climate is hard upon pianos and organs. Durability of material and tone are especially needed in instruments intended for sale in Bermuda. Other instruments—brass and reed—are entirely of English, German, or Swiss origin, their manufacture in the United States being yet in its infancy. Importers send direct to Europe for these. The trade in them is necessarily small.

Of watches, clocks, plated ware, and solid silverware the United States supply nearly three-fourths. This used not to be, but Americans have perfected themselves in designs, which, with their improved machinery, ranks them second to none as large manufacturers in these lines. Of jewelry about 50 per cent is of English manufacture. Being stamped with the English hall-mark it is preferred, the hall-mark being a guaranty by the Government that the standard is up to what it is represented to be, while in the United States there is no certainty as to standard beyond the reputation of manufacturers.

To sum up, in the language of the most extensive dealer in Bermuda, "within the last twenty-five years there has been a change in the sale of most of the foregoing wares from almost exclusively English to almost exclusively American goods."

W. K. SULLIVAN,
Consul.

UNITED STATES CONSULATE,
Hamilton, May 7, 1892.

RUSSIAN PETROLEUM IN 1892.

REPORT BY CONSUL CHAMBERS, OF BATOUM.

In compliance with the request of the Department of September 13 for a report from this consulate upon the progress of, and the effect of the cholera upon, the Russian petroleum trade, I have concluded to give you at once such statistics and information regarding the trade as are now obtainable, instead (as I had intended) of waiting to obtain complete statistics for the year 1892. The complete statistics for the year will not be obtainable for probably two months yet, while the figures now at hand will show quite as clearly as any hereafter obtainable the progress the trade is making and also the effect of the cholera upon it, as there has been no cholera in Bakoo for several months.

The only noticeable effect of the cholera upon the trade at Bakoo was in the falling off of the crude oil production from 137,075 barrels per day in

May to 94,033 barrels in June, 76,772 barrels in July, and 91,882 barrels in August; and when the fact that all authorities agreed that at least 80,000 of a total population of not more than 110,000 had left Bakoo before the middle of July is considered, this decline in the crude production in that month seems remarkably small.

As will be seen by statistics herewith, the output of petroleum products from Batoum, notwithstanding the cholera, was greater in 1892 than in 1891; but the increase in the output of illuminating oils was only about 6 per cent over 1891. As about 2 per cent of this increase was a heavy product called solar oil, heretofore sold with and as residuum, but now used for making illuminating gas in London, the actual increase was only about 4 per cent, against an increase of about 12 per cent in 1891 over 1890. The insignificance of this increase was not, however, due to the cholera scare, because cholera was never epidemic in Batoum. Up to September 1 not more than forty cases were officially reported, while the whole number of cases during the year was not more than one hundred and ten. Of course, in July many workmen left the place, and for several weeks the loading of cases was retarded; but the delay was insignificant. The increased and aggressive competition of the American trade in the world's markets was the cause of the small increase in exports, as prices were so low during the last half of the year that, if export was not actually a losing business, it was unprofitable, notwithstanding the price of refined oil at Bakoo reached the lowest figure ever known in the trade's history, viz, 5 copecks per pood (equivalent to less than half a cent per gallon).

Notwithstanding the large and increasing crude-oil production during the last quarter of 1892, prices of both crude and refined oil at Bakoo have advanced to 2¾ copecks per pood for crude (about 11 cents per barrel of 42 gallons) and 9 copecks per pood (about nine-tenths of a cent per gallon) for refined oil free on board cars. This advance is due, first, to large contracts having been made by refiners for the delivery for a term of five years of refined oil to a foreign firm heavily engaged in the export trade at a price of 9 copecks per pood (nine-tenths of a cent per gallon) upon a basis of 2 copecks per pood (8½ cents per barrel of 42 gallons) as the market price of crude, the quantity of refined thus contracted being, it is said, about 100,000,000 gallons per annum, or about four-fifteenths of the total refined production of 1892; and, second, an agreement concluded at Rostoff, on the Don, in December, between Nobel Brothers and six other heavy producers and refiners, whereby Nobel Brothers are constituted the sole agents of the seven firms for the marketing in Russia and abroad of all their products for five years from March 1–13, 1893. These seven firms are said to control about nine-fifteenths of the total crude and refined oil production of Bakoo; consequently the two combinations will control about thirteen-fifteenths of the whole output of refined oil, leaving only two-fifteenths of the whole possible refined production free to be competed for by the many exporters and shippers not included in either of the two large combinations. The foreign firm before mentioned has never engaged in the home trade, and it is believed that the Nobel combination will be in a position to absolutely control that branch of the business; and the expectation is that they will advance prices in Russia of all petroleum products to a very profitable figure (a 200 per cent advance is confidently expected), in order to make the home trade bear the financial brunt of competition in foreign markets. It is also believed, and apparently with reason, that all the refiners and producers not now engaged to either of these two combinations must eventually and soon become identified with one or the other of them, and that even perhaps before this is realized the two will be united, and in this manner the whole trade will be united, and be in a position to approach the American trade with a view to making an amicable and, consequently, profitable division of the world's markets.

The depressed and apparently desperate financial condition of the trade as a whole seems to be the cause of these very tardy efforts toward unification, and, notwithstanding the fact that the "crisis" has grown worse since my last report, the trade is sufficiently sanguine to be looking confidently forward to the present year to produce the great financial millennium of the petroleum trade.

No new territory was developed in 1892, and, in fact, practically no efforts were made in that direction.

During the year an entirely new feature in the method of shipping refined oil to India and the far East was inaugurated by the clearing of the tank steamer *Murex* from this port in August with a cargo of refined oil in bulk for Singapore and Bangkok, via the Suez Canal. This trade is now supplied with oil in cans and cases, but the *Murex* is constructed according to rules laid down by the Suez Canal commission for the express purpose of carrying bulk oil through the canal, her owners having two more steamers of like construction completed and, it is said, three or four more in the course of construction. They have also erected tankage at Calcutta, Madras, Singapore, and Bangkok, and will, it is said, continue the erection of tankage at all the principal ports of India, Burmah, Straits Settlements, Java, Siam, China, and Japan.

Naturally, this innovation in the method of exporting oil to the far East caused some consternation at first among the can and case manufacturers here, as it was feared that its success could only result in the ultimate death of the can and case trade of Batoum; but the case-oil output of Batoum in 1892 was more than 120,000,000 gallons, to carry which to the far East would require at least twenty-five such steamers as the *Murex*, calculating three voyages a year each, which is more than they will average if their owners intend that they shall bring return cargo to Mediterranean and continental ports. Then the capitalists engaged in this speculation or experiment have the very difficult problem to solve of the distribution of refined after its delivery into the various tanks, in the solution of which, it is reported, they have got no nearer than the purchasing of oil cans and bottles at Singapore and Bangkok, which would seem that they were going to depend for the present upon a very uncertain means of distribution. In fact, all reports regarding the progress of this new departure in the East are of a nature very satisfactory to the trade here, and the can and case manufacturers have entirely recovered their equanimity, and it is said that there seems to be a feeling in the trade that the opportunity for purchasing very cheaply some steamers constructed after Suez Canal specifications will present itself within the year.

I append a few statistics of the petroleum trade for 1892, in comparison with former years.

Table showing crude production of Balakhani-Sabunchi and Bibi-Eibat for the first eleven months of 1892 (old style).

Months.	Crude piped to refineries.	Lake oil and crude piped and shipped by railway.	Estimated fuel and evaporation.	Stocks at wells at end of month.	Total.	Stocks at wells at beginning of month.	Total production for month.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
January	2,509,379	3,447	183,290	1,397,706	4,093,822	1,104,101	2,989,721
February	2,558,164	4,098	190,284	1,498,710	4,281,256	1,397,706	2,883,550
March	3,672,283	9,192	242,280	1,590,730	5,514,485	1,498,710	4,015,775
April	3,719,738	1,097	244,800	1,505,400	5,471,035	1,590,730	3,880,305
May	3,999,463	1,320	262,800	1,491,130	5,754,713	1,505,400	4,249,313
June	2,886,763	2,404	189,120	1,233,841	4,312,128	1,491,130	2,820,998
July	2,478,426	5,005	163,320	967,039	3,613,790	1,233,841	2,379,949
August	2,898,560	5,159	192,720	718,957	3,815,396	967,039	2,848,357
September	2,870,013	1,867	191,160	839,377	3,902,417	718,957	3,183,460
October	3,389,993	16,478	226,200	1,050,934	4,683,605	839,377	3,844,228
November	3,245,144	6,194	215,400	1,512,562	4,979,300	1,050,934	3,928,366
Total	34,257,926	56,261	2,301,374	13,806,386	50,421,947	13,397,925	37,024,022

Months.	1892.			1891.		
	Average daily production.	Daily average from flowing wells.	Daily average from pumping wells.	Average daily production.	Daily average from flowing wells.	Daily average from pumping wells.
	Barrels.	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*	*Barrels.*
January	96,443	16,219	80,224	80,108	9,441	70,667
February	99,432	16,067	83,365	105,862	24,755	81,107
March	129,541	36,693	92,848	92,467	14,629	77,838
April	129,343	43,172	86,171	88,420	9,008	79,412
May	137,075	46,130	90,945	100,764	6,991	93,773
June	94,033	19,112	74,921	104,245	16,800	87,445
July	76,772	15,224	61,548	98,214	8,721	89,493
August	91,882	22,107	69,775	108,296	15,532	92,764
September	106,115	27,624	78,491	100,956	12,538	88,418
October	124,007	32,756	91,251	109,262	15,251	94,011
November	130,946	37,160	93,786	104,591	10,605	93,986
Total	110,520	28,420	84,100	98,998	13,235	85,763

NOTE.—The barrels are of 42 gallons.

Table showing shipments of petroleum products from Russia for the first nine months (old style) of 1891 and 1892.

Description.	Illuminating oils.		Lubricating oils.	
	1891.	1892.	1891.	1892.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*
Exports:				
By rail and sea	153,330,000	163,595,000	16,200,000	22,380,000
Bakoo to Persia	895,000	715,000	....	....
Total exports	154,2 5,000	164,310,000	16,200,000	22,380,000
Shipments to Russia:				
Via Odessa	85,000	280,000	75,000	110,000
Via Batoum	18,445,000	19,180,000	1,345,000	1,260,000
Via Bakoo	115,805,000	116,245,000	3,280,000	2,970,000
Via Bakoo to Finland	2,155,000	2,475,000	215,000	170,000
Total to Russia	136,490,000	138,180,000	4,915,000	4,510,000
Grand total	290,715,000	302,490,000	21,115,000	26,890,000

Description.	Crude oil and residuum.		Total.	
	1891.	1892.	1891.	1892.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*
Exports:				
By rail and sea	10,465,000	8,400,000	179,995,000	194,375,000
Bakoo to Persia	820,000	980,000	1,715,000	1,695,000
Total exports	11,285,000	9,380,000	181,710,000	196,070,000
Shipments to Russia:				
Via Odessa	20,000	15,000	180,000	405,000
Via Batoum	560,000	460,000	20,350,000	20,900,000
Via Bakoo	468,415,000	502,780,000	587,500,000	621,995,000
Via Bakoo to Finland	20,000	....	2,390,000	2,645,000
Total to Russia	469,015,000	503,255,000	610,420,000	645,945,000
Grand total	480,300,000	512,635,000	792,130,000	842,015,000

Table showing exports of Russian petroleum products from Batoum for the last eight years.

Year.	Crude oil and crude residuum.	Lubricating oil.	Illuminating distillate.	Illuminating oil.	Total.	Increase.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Per cent.*
1885	*4,774,600	....	....	26,865,325	31,639,925	....
1886	*14,915,315	....	....	39,321,005	54,236,320	71.5
1887	1,622,100	6,772,350	16,747,550	42,827,935	67,969,935	25.3
1888	4,815,320	9,073,305	19,993,610	109,660,875	143,543,110	111.3
1889	3,485,735	10,506,360	23,260,525	149,351,370	186,603,990	16.1
1890	6,282,950	19,831,880	24,945,700	167,820,695	218,881,225	17.25
1891	6,466,270	21,121,745	24,462,620	190,992,895	243,043,530	11.06
1892	6,855,450	26,011,945	34,856,160	194,091,450	261,815,005	7.72

*These items include lubricating and illuminating distillate.

Table showing shipments of petroleum products from Batoum in 1891 and 1892.

To—	Crude oil and residuum.		Lubricating oil.		Illuminating distillate.	
	1891.	1892.	1891.	1892.	1891.	1892.
Austria:	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Fiume	200,000	....	591,050	453,240	16,494,635	20,913,475
Trieste	602,795	348,525	296,600	265,080	6,789,545	7,742,240
Belgium	2,224,320	1,678,630	7,391,060	6,211,075	....	156,150
Bulgaria	....	....	5,250	6,400	....	....
Egypt	3,700	8,750	14,100	51,100	....	....
United Kingdom	665,030	1,054,190	2,630,350	1,765,695	....	5,196,075
France	1,878,750	3,148,890	4,732,620	7,687,675	....	....
Germany	799,155	92,000	4,654,715	8,759,175	....	....
Holland	....	....	56,850	182,010	....	....
Italy	18,750	58,750	111,150	333,100	290,580	....
Malta	....	....	....	1,000	....	....
Roumania	68,770	100,245	382,500	171,895	887,860	848,220
Spain	....	364,170	195,550	6,750	....	....
Turkey	....	1,300	51,000	79,750	....	....
Greece	....	....	1,450	2,750	....	....
Norway and Denmark	5,000	....	7,500	35,250	....	....
Total exports	6,466,270	6,855,450	21,121,745	26,011,945	24,462,620	34,856,160
Russia	810,470	78,600	846,400	816,800	1,317,755	2,210,495
Total shipments	7,276,740	6,934,050	21,968,145	26,828,745	25,780,375	37,066,655

To—	Illuminating oil.		Total.	
	1891.	1892.	1891.	1892.
Austria:	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Fiume	....	....	17,285,685	21,366,715
Trieste	7,074,460	3,509,380	14,763,400	11,865,225
Belgium	13,069,230	11,448,665	22,684,610	19,494,520
Bulgaria	1,510,040	1,633,930	1,515,290	1,640,330
Cochin China	1,410,740	1,590,860	1,410,740	1,590,860
China	12,269,080	10,505,710	12,269,080	10,505,710
Egypt	8,266,320	7,119,360	8,284,120	7,179,210
United Kingdom	43,054,055	40,517,605	46,349,435	48,533,565
France	918,750	1,639,380	7,530,120	12,475,945
Germany	701,350	738,240	6,155,220	9,589,415
Holland	1,722,305	2,415,915	1,779,155	2,597,925
India	38,745,300	47,807,290	38,745,300	47,807,290
Italy	11,019,685	9,290,870	11,440,165	9,682,720
Japan	7,338,200	10,356,140	7,338,200	10,356,140
Java	13,748,960	17,646,800	13,748,960	17,646,800
Manila	866,090	756,570	866,090	756,570
Malta	835,000	1,066,285	835,000	1,067,285
Roumania	2,748,930	1,050,180	4,088,060	2,170,540
Siam	1,242,400	....	1,242,400	....
Spain	80,000	20,000	275,550	390,920
Turkey	24,204,790	24,688,270	24,255,790	24,769,320
Greece	....	130,000	1,450	132,750
Norway and Denmark	....	....	12,500	35,250
Africa	167,210	160,000	167,210	160,000
Total exports	190,992,895	194,091,450	243,043,530	261,815,005
Russia	22,957,965	23,790,980	25,932,590	26,896,875
Total shipments	213,950,860	217,882,430	268,976,120	288,711,880

Table showing the daily average crude production at Batoum for the last eight years.

Year.	Production.	Year.	Production.
	Barrels.		*Barrels.*
1885	38,137	1889	67,561
1886	49,329	1890	79,985
1887	54,247	1891	99,567
1888	63,147	1892	110,000

JAMES C. CHAMBERS,
Consul.

UNITED STATES CONSULATE,
Batoum, January 3, 1893.

GERMAN-AMERICAN TRADE IN 1892.

REPORT BY CONSUL-GENERAL MASON, OF FRANKFORT.

The tabular statement herewith submitted shows the value of declared exports to the United States during the year 1892 from the district of the consulate-general of Frankfort and those of the several consulates and commercial agencies under its supervision to have aggregated $38,902,166.07. This is not only an increase of $1,515,579.64 over the exports from the same districts during 1891, but it exceeds the totals of every previous year, except 1887 and 1890. In 1890 the influence of the then pending tariff legislation swelled American imports from all countries to abnormal proportions and loaded the market with a surplus which required months of greatly reduced importations to consume.

Although the figures for the past year do not reveal any great increase over those of 1888, 1889, and 1891, they show that in the midst of the general depression that has fallen upon European manufactures during the past two years, and notwithstanding the United States tariff legislation of 1890, there has been at least no decline in the normal export trade of southern and western Germany to the United States. This, in contrast with the collapse that has occurred in German and British commerce with South America and some other foreign countries, is especially gratifying to economists who realize the vital importance of our country as an outlet for the surplus manufactures of industrial Germany. As a leading mercantile journal puts it, "our trade with the United States is now the one bright and satisfactory spot on the foreign horizon," and it is this fact which more than any other has inspired the profuse and splendid exhibit that the Fatherland will make at Chicago during the coming summer.

It is only when the comparison is extended backward over the preceding decade that the steady, solid growth of German exports to our country is made apparent. Beginning with 1881 the total value of declared exports from the territory under supervision of this consulate-general has been, by years, as follows:

Year.	Value.	Year.	Value.
1881	$26,181,700.80	1887	$42,785,689.14
1882	32,082,382.35	1888	38,764,751.25
1883	28,887,249.89	1889	37,162,389.54
1884	30,471,829.26	1890	43,133,636.59
1885	27,298,808.74	1891	37,386,587.43
1886	36,635,517.23	1892	38,902,166.07

Among the reasons which underlie this steady export trade to the United States, which has been maintained in the face of increased duties and the enormous development of competing industries in our own country, may be cited principally the influence of the large number of German-American citizens engaged in trade throughout the United States and who naturally prefer to buy and sell the manufactures of their native land, the ready zeal with which manufacturers in Germany study and comply with the special wants and peculiarities of foreign markets, the cheapness and general excellence of their labor supply, the high standard of technical education which prevails in this country, the acknowledged preëminence of the Germans in all that relates to the application of chemistry to manufacture, and, finally, the willingness of exporters here to sell for very narrow profits when larger ones can not be obtained. They do not allow either conceit or conservatism to stand in the way of a sale, provided the price does not involve an actual loss. The retail shops of England and the great dry-goods emporiums of Paris are filled with German goods under English or French labels, which have made their way to those markets because they are cheaper than home-made goods of similar quality can be supplied.

In general, however, it must be said that the year 1893 opens upon an industrial situation in Germany which is far from reassuring. The enormous development of manufacturing capacity, particularly through the adoption of labor-saving machinery, has led to an overproduction in many branches, which has been aggravated by the commercial disasters in South America and the lagging demand from the new outlets in Africa and the far East. The cost of living in Germany has increased out of all proportion to the advance of wages, strikes and disorders among the miners have restricted the supply and augmented the price of coal, taxation has increased while incomes have diminished, and a steadily growing population has widened the gap between the limits of food production and consumption, necessitating increased imports of meat and breadstuffs, while the universal depression which now overshadows the iron and steel manufacture in all countries has fallen heavily upon a large and important branch of German industry, already hampered by costly coal and a limited supply of native ores.

But, notwithstanding all these discouragements, German manufacturers are generally patient and hopeful. Their achieved successes during the past ten years have taught them the value of liberality and enterprise in the manufacture of new articles by new and perfected methods, and there will be seen at the Columbian Exposition a display of products from this country that will give the world a higher appreciation of the present standards and capacities of German manufacture. A leading trade journal of Berlin said recently in an article on the present condition of certain textile industries:

> Although the general state of business in this country is deplorable, the textile industries are in a position to issue better reports than many others. They have been able, ever since June or July, to do a growing business with the United States, which has fed particularly the factories of Barmen, Elberfeld, and Crefeld, where ribbons and mixed cotton and silk articles are manufactured. We have, consequently, very bright reports from those places, as well as from parts of Saxony, where a large export trade to the United States is carried on. It is illustrative of the high importance attached by this country to the United States that very great efforts are being made to have Germany well represented at the World's Fair in Chicago. The German textile trades will in any case do their utmost to be represented there in a manner becoming to their own interests.

Table showing the value of exports to the United States from the consulate-general at Frankfort and the consulates subordinate thereto during the year ended December 31, 1892.

Articles.	Aix la Chapelle.	Bamberg.*	Barmen.	Cologne.
Braids, bindings and trimmings, etc.			$824,494.53	
Baskets and basket ware		$213,437.42		
Books, stationery, photographs, and paper ware.	$168,201.23			$7,132.89
Buttons and button stuffs, etc.	25,051.00		153,201.87	
Caps and cartridges				26,385.02
Cement				5,042.20
Clay				26,497.97
China, glass, porcelain, stone, and earthen ware		55,599.97		94,148.32
Cologne water				16,179.66
Dyes, drugs, chemicals, etc.	141,003.83	1,811.08	760,093.41	593,560.03
Fancy goods and toys	4,766.27		112,373.58	
Glass plate, window and mirror glass	33,381.75			
Gas-burners, lava gas tips, and brass lamps		3,299.24		
Gloves	160,866.55			
Hatbands and ribbons			1,110,176.50	
Hops		131,120.16		
Ironware, steel, cutlery, etc.	183,125.97		1,203,738.16	367,652.97
Leather, hides, and skins				174,407.99
Linen, woolen, and cotton goods	949,788.22	2,938.19	923,288.82	41,058.24
Machinery	503.54	528.36	11,764.20	851.50
Mineral water	6,505.94			394.634.74
Prunes, dried fruits, nuts, land produce, etc.	14,809.01	2,692.26	54,355.43	86,463.27
Pins and needles	80,485.29		74,903.76	
Silk, silk goods, velvets, ribbons and braids, etc.			886,378.32	177,884.66
Soaps and perfumery				14,351.68
Sundries	3,675.14	634.39	40,170.27	105,144.74
Steel, manufactured and bessemer				75,217.31
Wine, brandy, beer, and liquors	205.63	14,321.18		267,607.53
Total	1,772,369.37	426,382.25	6,154,938.85	2,474,220.72
Total for 1891	1,742,026.75		5,888,724.30	2,317,075.66
Total for 1890	1,993,408.08		7,519,771.48	2,841,621.04
Total for 1889	1,884,571.72		†5,575,146.05	2,358,093.87
Total for 1888	2,027,956.53		‡7,024,140.79	2,359,873.31

* Established March 18, 1892; formerly consular agency under Sonneberg.

† Exclusive of Elberfeld, with $1,352,840.59, discontinued June 30, 1889.

‡ Inclusive of Elberfeld, with $2,721,424.10.

Table showing the value of exports to the United States from Frankfort, etc.—Continued.

Articles.	Crefeld.	Dusseldorf.	Erfurt.*	Frankfort.
Braids, bindings and trimmings, etc		$14,364.20		
Baskets and basket ware				$7,196.72
Brushes and hair pencils				4,953.94
Books, stationery, photographs, and paper ware.	$68,153.15	28,168.30		146,323.80
Buttons and button stuffs, etc	1,179.22	5,781.06		3,035.62
Caps and cartridges		18,855.16		
Cement				52,607.28
Clay		97,318.58		102,918.64
China, glass, porcelain, stone, and earthen ware			$98,892.44	58,547.55
Colored, photographic, and fancy paper				144,621.90
Decalcomania				25,228.63
Dyes, drugs, chemicals, etc	22,868.21	117,106.85	21,235.02	1,426,762.87
Fancy goods and toys		4,615.68	210,847.74	73,382.34
Glass plate, window and mirror glass		1,763.91		
Gloves			18,279.73	
Hatters' fur				78,050.20
Hatbands and ribbons	122,088.47			
Hair, prepared and raw			1,886.42	135,857.33
Hares' hair				216,162.92
Hops				114,970.40
Instruments		9,035.35	10,630.56	5,295.87
Ironware, steel, cutlery, etc		596,566.03	5,012.38	12,772.31
Jewelry and precious stones				21,218.63
Leather, hides, and skins				556,265.90
Leather goods				26,208.29
Linen, woolen, and cotton goods	24,073.34	157,677.05	24,169.73	66,732.84
Machinery	12,387.61	363,231.40		27,045.14
Mineral water		4,561.68		62,571.52
Music, musical strings, and instruments		154.39		7,321.42
Optical goods				36,412.82
Oil and glass paintings and chromos	1,401.07	12,353.09		12,005.92
Platina wire and platinum				318,679.41
Prunes, dried fruits, nuts, land produce, etc				33,763.73
Seeds, plants, etc			71,049.89	6,242.31
Silk, silk goods, velvets, ribbons and braids, etc	2,921,193.44	74,968.05		677.80
Smokers' articles, snuff, cigars, and tobacco			6,664.89	15,512.49
Soaps and perfumery	19,415.00			24,651.69
Sundries	3,965.24	32,350.55	18,578.49	48,520.04
Steel, manufactured and bessemer				1,880.16
Wine, brandy, beer, and liquors	17,457.21	2,347.74	1,670.55	127,366.29
Watches, clocks, and watchmen's detectors			24,442.91	9,026.11
Total	3,214,121.96	1,541,219.07	513,360.75	4,010,880.63
Total for 1891	4,087,049.35	1,272,982.39		3,675,095.02
Total for 1890	6,010,884.02	1,382,984.20		3,864,569.88
Total for 1889	5,436,838.36	1,613,377.12		3,351,424.61
Total for 1888	5,227,201.16	2,632,779.52		3,046,346.82

Articles.	Freiburg.†	Fürth.‡	Kehl.	Mannheim.
Brushes and hair pencils		$5,361.66		
Bronze powder and leaf metal		368,090.82		
Books, stationery, photographs, and paper ware.	$7,702.70	67,633.05	$142,217.47	$18,860.46
Buttons and button stuffs, etc	4,082.95		29,787.20	
Cement				317,366.36
China, glass, porcelain, stone, and earthen ware			7,451.90	229.55

* Established May 28, 1892; formerly belonged to Sonneberg district.

† Established December 6, 1892; formerly consular agency under Kehl.

‡ Formerly consular agency under Nuremberg; changed to commercial agency August 15, 1890.

Table showing the value of exports to the United States from Frankfort, etc.—**Continued.**

Articles.	Freiburg.*	Fürth.†	Kehl.	Mannheim.
Decalcomania				$5,281.23
Dyes, drugs, chemicals, etc	$2,569.90		$181,754.10	2,687,013.89
Fancy goods and toys		$352,485,99	1,665.14	9,322.29
Glass plate, window and mirror glass		1,602,529.00	138,385.44	29,162.20
Gold, silver, and metal paper		43,755.18		
Gloves				39,406.21
Hair, prepared and raw		12,839.63	69,154.67	
Hops		22,745.58	18,030.22	36,821.60
Instruments	171.75		2,334.30	
Ironware, steel, cutlery, etc	1,070.80		9,673.67	15,789.00
Jewelry and precious stones			144.80	12,485.21
Leather, hides, and skins			231,846.46	1,271,087.03
Linen, woolen, and cotton goods	256,448.50	3,752.58	940,601.27	108,696.33
Machinery		8,025.36	3,787.70	
Music, musical strings, and instruments	1,504.70		17,141.55	335.74
Optical goods		27,473.63		
Prunes, dried fruits, nuts, land produce, etc		27,289.56	31,996.58	7,218.98
Silk, silk goods, velvets, ribbons and braids, etc	16,670.50		119,204.70	29,149.65
Smokers' articles, snuff, cigars, and tobacco		5,555.65	5,986.11	123.52
Sundries	285.60	27,548.52	14,238.03	71,392.97
Steel, manufactured and bessemer			120,759.66	
Wine, brandy, beer, and liquors			4,959.61	275,966.55
Watches, clocks, and watchmen's detectors	87.85		11,359.23	
Total	290,595.25	2,575,086.21	2,102,479.41	4,935,708.77
Total for 1891		2,783,328.60	2,183,701.95	3,621,603.32
Total for 1890		1,244,865.65	1,903,740.65	3,121,298.13
Total for 1889			1,986,158.70	2,467,337.78
Total for 1888			1,971,877.80	1,396,059.92

Articles.	Mayence.	Munich.	Nuremberg.	Sonneberg.
Baskets and basket ware				$76,758.12
Brushes and hair pencils		$5,003.16	$81,102.68	
Bronze powder and leaf metal		30,601.44	282,306.49	
Books, stationery, photographs, and paper ware.	$1,323.89	62,574.76	36,141.71	35,985.16
Cement	202,578.48			
Clay			17,224.92	
China, glass, porcelain, stone, and earthen ware.		11,294.16	25,794.79	917,316.62
Colored, photographic, and fancy paper			46,887.23	
Downs and feathers			75,270.81	
Dyes, drugs, chemicals, etc	528,131.50	46,782.84	57,270.91	49,492.70
Fancy goods and toys		9,249.28	32,826.88	1,271,158.90
Glass plate, window and mirror glass			20,229.76	
Gold, silver, and metal paper			1,270.83	
Gas-burners, lava gas tips, and brass lamps			14,857.45	
Gloves		163,988.18		50,082.00
Hair, prepared and raw	15,327.42			
Hops	141,671.81		525,026.04	47,751.84
Instruments		13,805.86	31,599.39	
Ironware, steel, cutlery, etc			64,115.92	30,010.85
Jewelry and precious stones	356,491.38			
Leather, hides, and skins	141,277.70	11,362.66	21,576.45	367.57
Leonic ware			56,740.73	
Linen, woolen, and cotton goods		19,854.53	18,540.65	85,235.89
Lithographic stones and materials			117,236.09	
Machinery			2,766.70	
Mineral water				2,172.61

* Established December 6, 1892; formerly consular agency under Kehl.

† Formerly consular agency under Nuremberg; changed to commercial agency August 15, 1890.

Table showing the value of exports to the United States from Frankfort, etc.—Continued.

Articles.	Mayence.	Munich.	Nuremberg.	Sonneberg.
Music, musical strings, and instruments	$1,194.57	$7,419.04	$34,427.29	$698.30
Optical goods			2,346.65	
Oil and glass paintings and chromos	5,609.90	302,386.20	10,285.37	
Prunes, dried fruits, nuts, land produce, etc	19,127.62	103,050.65		
Seeds, plants, etc			631.13	23,344.82
Slates, slate pencils, and lead pencils			97,155.33	33,718.29
Smokers' articles, snuff, cigars, and tobacco			3,994.18	7,034.78
Statuary and sculpture		37,238.31	1,602.85	
Sundries	23,936.57	49,142.75	12,270.19	
Steel, manufactured and bessemer	9,217.52			
Wine, brandy, beer, and liquors	973,547.94	46,454.71	25,413.50	30,023.04
Watches, clocks, and watchmen's detectors		13,643.76		1,826.94
Total	2,419,436.30	933,852.29	1,716,912.92	2,662,978.43
Total for 1891	2,232,101.95	792,436.26	1,841,033.20	3,822,735.45
Total for 1890	2,306,752.44	1,230,919.10	4,291,843.60	3,932,273.77
Total for 1889	1,848,640.88	1,027,605.84	5,276,855.60	2,962,927.10
Total for 1888	1,868,527.75	869,847.47	5,161,104.09	2,921,322.73

Articles.	Stuttgart.	Total.	1891.	1890.
Braids, bindings and trimmings, etc		$838,858.73	$1,191,858.64	$1,504,304.78
Baskets and basket ware		297,392.26	290,430.92	290,071.47
Brushes and hair pencils		96,421.44	62,770.12	43,238.46
Bronze powder and leaf metal		680,998.75	767,171.03	827,521.22
Books, stationery, photographs, and paper ware.	$61,275.59	851,764.16	861,566.84	921,793.97
Buttons and button stuffs, etc		222,118.92	338,810.14	243,600.68
Caps and cartridges		45,240.18	30,620.09	18,306.22
Cement		577,594.32	(*)	(*)
Clay		243,960.11	110,772.89	59,882.92
China, glass, porcelain, stone, and earthen ware		1,269,274.90	181,257.95	1,480,220.23
Corsets	103,061.54	103,061.54	117,024.26	217,127.01
Cologne water		16,179.66	16,970.22	16,799.35
Colored, photographic, and fancy paper		191,509.13	(†)	(†)
Decalcomania		30,509.86	27,988.56	45,869.43
Downs and feathers		75,270.81	50,451.03	56,055.92
Dyes, drugs, chemicals, etc	203,681.30	6,841,138.44	6,205,366.68	5,835,156.15
Fancy goods and toys		2,082,694.09	2,093,565.86	2,226,538.87
Glass plate, window and mirror glass		1,825,452.06	3,341,070.34	2,372,991.89
Gold, silver, and metal paper		45,026.01	38,604.91	(‡)
Gas-burners, lava gas tips, and brass lamps		18,156.69	16,981.26	22,910.56
Gloves		432,622.67	399,387.57	453,815.72
Hatters' fur		78,050.10	250,215.18	204,965.38
Hatbands and ribbons		1,232,264.97	994,910.44	1,540,335.22
Hair, prepared and raw		235,065.47	353,105.58	254,170.88
Hares' hair		216,162.92	221,390.73	292,448.55
Hops		1,038,137.65	934,305.33	1,492,649.90
Instruments	20,801.02	93,674.10	73,322.53	101,621.86
Ironware, steel, cutlery, etc	8,126.80	2,497,654.86	1,874,832.38	3,529,562.94
Jewelry and precious stones	6,920.57	397,260.59	350,651.80	394,112.98
Leather, hides, and skins	4,359.11	2,412,550.87	1,501,170.94	1,667,813.85
Leather goods		26,208.19	40,054.94	44,865.26
Leonic ware		56,740.73	150,235.04	82,232.97
Linen, woolen, and cotton goods	221,078.10	3,843,934.28	3,846,669.68	4,328,570.86
Lithographic stones and materials		117,236.09	112,414.68	102,880.62
Machinery		430,831.51	426,174.24	103,499.21
Mineral water		470,446.49	392,945.29	496,360.53
Music, musical strings, and instruments	209,240.66	279,437.66	264,039.38	268,541.42

* Included in dyes, drugs, etc. † Included in books, etc. ‡ Included in leaf metal.

Table showing the value of exports to the United States from Frankfort, etc.—Continued.

Articles.	Stuttgart.	Total.	1891.	1890.
Optical goods		$66,233.10	$57,004.06	$30,144.04
Oil and glass paintings and chromos		344,061.55	290,467.76	336,856.50
Platina wire and platinum		318,679.41	220,707.66	299,245.89
Prunes, dried fruits, nuts, land produce, etc	$162,608.67	543,375.76	480,693.33	897,313.72
Pins and needles		155,389.05	127,972.00	82,033.54
Seeds, plants, etc		101,268.15	80,970.94	125,112.56
Slates, slate pencils, and lead pencils		130,873.62	152,785.59	216,632.77
Silk, silk goods, velvets, ribbons and braids, etc.		4,226,127.12	5,192,939.93	6,989,934.11
Smokers' articles, snuff, cigars, and tobacco		44,871.62	90,504.62	55,691.99
Soaps and perfumery		58,418.37	22,680.25	25,014.07
Statuary and sculpture		38,841.16	41,740.55	47,618.64
Sundries	149,521.03	601,374.52	660,375.49	738,839.51
Steel, manufactured and bessemer		207,074.65	431,475.98	134,333.23
Wine, brandy, beer, and liquors	2,356.02	1,789,697.50	1,624,972.40	1,556,788.94
Watches, clocks, and watchmen's detectors	4,592.48	64,979.28	82,189.40	57,179.80
Total	1,157,622.89	38,902,116.07		
Total for 1891	1,136,693.23	37,386,587.43		
Total for 1890	1,488,704.55	43,133,636.59		
Total for 1889	1,373,411.91	37,162,389.54		
Total for 1888	2,257,713.36	38,764,751.25		

FRANK H. MASON,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Frankfort, December 31, 1892.

ANTWERP IVORY MARKET.

TRANSMITTED BY CONSUL LINCOLN.

By the following table it will be seen that the business in ivory (Kongo and Central African) has greatly increased in 1892 over the four preceding years:

Year.	Teeth.	Weight.
		Pounds.
1892	14,210	261,800
1891	6,421	132,000
1890	7,085	170,000
1889	3,700	102,520
1888	679	14,080
Total	32,095	680,400

At the first sale of the year there were sold 57,200 pounds at a price 40 cents higher than former rates, except for "scrivailles," which remained the same, and bangles, which were quoted a little lower. In May the sale amounted to 70,400 pounds. The advance acquired at the first sale was lost, and teeth weighing from 40 to 50 pounds were quoted at 20 cents lower than the lowest rates in 1891.

In August 77,000 pounds were sold at the same rates as in May, with the exception of "scrivailles," which fell about 40 cents. In November there was a marked advance of from 20 to 60 cents for very defective ivory, and the quantity sold was 57,200 pounds.

The rates established at the close of 1892 were the same as those established at the close of 1891, despite the fact that the quantity sold was nearly double.

Thus the future of the ivory trade can be looked forward to with confidence.

Table showing the prices of ivory.

Weight.	Price.
Teeth healthy or with slight defects.	
158 pounds	$3.36½
100 to 120 pounds	2.45½
90 to 97 pounds	2.32
80 to 89 pounds	2.20½
71 to 78 pounds	2.27⅓
60 to 69 pounds	2.16
50 to 59 pounds	1.97⅔
40 to 49 pounds	1.88⅔
31 to 39 pounds	1.84
20 to 26 pounds	1.84
10 to 18 pounds	1.43⅛
5 to 10 pounds	1.18⅛
1 to 4 pounds	1.16
Teeth more or less defective.	
121 to 126 pounds	2.38⅔
100 to 140 pounds	2.11⅓
91 to 99 pounds	2.09
80 to 89 pounds	2.00
71 to 78 pounds	2.04½
61 to 69 pounds	2.00
50 to 59 pounds	1.88⅔
40 to 49 pounds	1.77
31 to 39 pounds	1.77
22 to 29 pounds	1.66
17 to 18 pounds	1.52¼
Defective teeth.	
100 to 124 pounds	1.95½
90 to 99 pounds	1.93⅛
80 to 89 pounds	1.91
71 to 79 pounds	1.84
60 to 69 pounds	1.75
51 to 59 pounds	1.59
40 to 49 pounds	1.59
30 to 39 pounds	1.45½
24 to 29 pounds	1.38⅔
10 to 16 pounds	1.09
4 to 9 pounds	.82
Healthy bangles.	
32 to 34 pounds	2.29½
22 to 29 pounds	2.34
15 to 20 pounds	2.18⅛
12 to 14 pounds	2.07
9 to 10 pounds	1.72⅔
Defective:	
21 to 23 pounds	1.72⅔
11 to 15 pounds	1.54½

Weight.	Price.
Very defective teeth.	
101 to 125 pounds	$1.59
93 to 99 pounds	1.72⅔
80 to 89 pounds	1.59
71 to 79 pounds	1.70½
60 to 68 pounds	1.54½
50 to 59 pounds	1.43⅛
40 to 48 pounds	1.29⅙
31 to 39 pounds	1.20⅙
20 to 28 pounds	1.07
10 to 18 pounds	1.00¼
4 pounds	.72⅔
Healthy oversizes.	
22 to 40 pounds	1.97⅔
Defective (22 to 40 pounds)	1.70½
Healthy flat teeth.	
30 to 34 pounds	1.61⅓
20 to 23 pounds	1.52¼
10 to 19 pounds	1.47⅔
9 pounds	1.20⅙
Defective:	
22 to 25 pounds	1.41
10 to 18 pounds	1.18⅛
Healthy teeth for billiard balls.	
10 to 19 pounds	2.61⅓
8 to 9 pounds	2.34
7 to 8 pounds	2.09
6 to 7 pounds	1.91
Defective:	
12 to 17 pounds	1.86
9 to 10 pounds	1.79
6 to 9 pounds	1.90¼
Healthy "scrivailles."	
Hollow:	
6 to 12 pounds	1.18⅙
3 to 5 pounds	.97⅔
1 to 2 pounds	.68⅛
Defective (3 to 5 pounds)	.88⅓
Solid:	
6 to 9 pounds	1.59
1 to 5 pounds	1.27¼
Defective—	
5 to 9 pounds	.97⅔
3 to 5 pounds	1.00
Clubs.	
4 pounds	1.07
2 to 3 pounds	.93⅛

H. & G. WILLAERT,
Brokers.

ANTWERP, *December 31, 1892.*

THE CITY OF BARCELONA.

REPORT BY CONSUL BOWEN.

THE CITY GOVERNMENT.

Although Señor Sagasta and the Liberal party came into power during the last month of 1892, no changes were made in the officials of Barcelona until after the end of the year. The affairs of the city were therefore administered during the entire year by representatives of the Conservative party. The city government is composed of an alcalde, or mayor, and fifty city councilors, who are called the "ayuntamiento constitucional." The councilors are elected by the people, and the alcalde, who is their president, is appointed by the central Government. He receives no salary and has no veto power. The "ayuntamiento" meets at least once a week. In addition to the alcalde and ayuntamiento, there is a provincial government, a governor, and a captain-general, all of whom have duties that cover the entire province of Barcelona, including the city.

CITY EXPENSES.

The estimates for expenditures during the fiscal year 1892–'93 are the following:

Description.	Amount.	Description.	Amount.
	Pesetas.		*Pesetas.*
For the ayuntamiento (salaries, repairs, elections, etc.)	1,812,064.00	Fêtes, pensions, interest, collecting taxes, and litigation	9,509,641.67
For the police de seguridad	895,208.00	New works, fountains, streets, etc.	247,476.13
For the police urbana y rural	1,882,892.10	Miscellaneous	199,341.87
Schools, libraries, and museums	815,336.37	Total	16,454,509.53
Charities	159,282.50		
Correction, jails, etc.	292,403.91		
Public works	640,862.98		

As the peseta is equal to 19.3 cents, the total expenditure is estimated at about $3,290,901.90.

CITY REVENUES.

The city revenues are estimated at the same amount as the expenditures, and they are derived principally from rents, taxes, fines, and from duties imposed on articles of food brought into the city limits.

THE CITY'S DEBTS.

The amount of money appropriated for amortization and for the payment of interest on the city's debts is $613,767 for the present fiscal year. As no authoritative statement is obtainable as to when or why the debts were incurred, nor as to what they amount to exactly, I can only venture to suggest that the appropriation represents 5 per cent of the debts, which, in that case, would amount to $12,275,340. It is, however, well understood that the greater part of the city's debts resulted from the Barcelona Exposition of 1888, the erection of the Columbus monument in 1888, the construction of the new palace of justice, the new jail, and the new slaughterhouse, and improvements in the city hall.

LAW AND ORDER.

Again this year some fears were entertained that there would be a disturbance of the peace on the 1st of May. About 6,000 soldiers were collected in and about the city. The day, however, passed without any disorder. Later, on June 13, martial law was proclaimed by Captain-General Blanco, owing to the contumacious attitude of a large number of workingmen, who undertook to express sympathy with the strikers of San Martin de Provensals, one of the towns on the outskirts of Barcelona. On the 26th of July the state of siege was terminated, the strikers and their sympathizers having in the meantime conducted themselves with becoming self-restraint. The year 1892 may, inasmuch as nothing else occurred to occasion alarm, be considered an exceptionally orderly year for this part of Spain. The police statistics for the year also show that the law was unusually well respected. Only 4,337 arrests were made, and the great majority of them were for petty offenses.

PUBLIC HEALTH.

From the time that cholera broke out in Hamburg every precaution was taken to prevent that dread disease from entering Spain. On the frontier fumigation was resorted to, and travelers were obliged on arriving at this city to report to the mayor. No case of cholera, however, occurred, and seldom has Barcelona had so little reason to complain of the public health as during not only the summer, but also the entire year. The number of deaths that occurred during the month of November was 603, and the number during December was 797; and those figures represent rather more than the average of deaths per month here. According to the census of 1887 the population of Barcelona was 272,000, but now it is estimated at 318,000, and at nearly 500,000 with its immediate environs.

FOOT-AND-MOUTH DISEASE.

During the month of December the foot-and-mouth disease (*la glosopeda*) made its appearance in Barcelona; but the authorities acted with great energy, and a system of inspection was put into operation that soon brought the disease under control. No other contagion has afflicted the quadrupeds in this part of Spain.

IMPORT OF CHICKENS.

I may properly mention here a singular fact, and that is that the people of this province import almost all of their chickens. Two reasons are given therefor—one is that the chickens are destroyed by a worm indigenous to the soil here, and the other is that corn costs over $2 per bushel. The price of a good chicken in the market is, I find, about $1; still, it is not deemed a luxury. I am therefore of the opinion that our canned chicken might be easily and profitably introduced here.

IMPROVEMENTS.

In addition to the improvements mentioned under the head of "the city's debts," generous appropriations have been made by the ayuntamiento for pavements and repairs and for drinking fountains. The streets of Barcelona are, as a rule, well paved, and are always kept clean. Most of them are shaded by fine trees, which in the summer time offer gratifying protection from the sun, as they are very umbrageous. The heat in summer rarely reaches 90° F., but it is a humid, persistent heat and is therefore rather enervating; still, the climate of Barcelona, taking it all in all, gives one but little occasion to complain. In the new part of the city, called the "Ensanche," a number of houses were erected during the year that have added much to the architectural beauty of the city. With the exception of the Rambla and the Paseo de Colon and the buildings facing them, the old part of the city is somewhat monotonous in its aspect, but in the Ensanche the streets are extraordinarily wide, and the houses facing them are built in a great variety of styles, naturally the most interesting being the Moorish.

CHARACTERISTICS OF BARCELONA.

While the people of Barcelona are a commercial and mercantile people, and work from early morning until late in the evening, and therefore are very sober and sedate compared with the people in other parts of Spain, still they are beginning to feel and to show the effects of prosperity. A very few years ago there were not ten carriages, ten bonnets, or ten dress suits in the city; but now the equipages one sees every afternoon in the Paseo are numerous and as costly as are any in Paris or London, and mantillas are now the exception rather than the rule, and, although one would not be conspicuous in the opera without a dress suit, still one would feel so.

The opera house, by the way, is the fourth largest in the world. It is always well patronized, and the audiences are not only conversant with the best music, but are almost hypercritical. Barcelona supports also five or six theaters and numberless cafés. The truth is, the inhabitants are not social in their homes and do not care to entertain. The only chance, therefore, for young persons to meet is in public at the opera, theater, at mass, or in the *paseos*, and also at the few great balls given during carnival. Now and then private balls are given, but they are uncommon. The result is that one may live here for years and never see inside of a Spaniard's house. Even lovers who intend marriage are not free to call on their sweethearts. Custom, however, permits them to walk under the balconies every day for a half hour and enjoy all the enchantment that distance lends. Only married ladies walk out alone, and, if they be fair, or think they are fair, they generally take with them a maid. Still, the tendency is to accord more liberty to ladies and to show them greater respect.

THE ARTS.

The people of the four northeastern provinces of Spain, which together form the principality of Catalonia, are called Catalans. They are a distinct race from the rest of the Spaniards, and have a language of their own, which they always speak among themselves, and they have a patriotism of their own and a pride that will tend always to give a peculiar distinction to their works. As Barcelona is the principal city of Catalonia, nearly all the Catalan artists reside here. Like artists everywhere nowadays, they do not receive much encouragement from the people; but the Catalans, nevertheless, are proud of their artists, and, what is more, they have good reason to be. The paintings of Fortuny have a world-wide reputation, and his successors—Cusachs, Ribera, Serra, Baixeras, Urgell, Tamburini, Masriera, and Mas y Foudevita—have all attained enviable fame. Cusachs is indisputably one of the very finest painters of military pictures in Europe. Serra's genius was recently acknowledged by the purchase of one of his Madonnas for the Vatican. Americans will have a chance to judge of the excellent work done by all of these artists at the Chicago Exposition, for they have just decided to send thither some of their most characteristic works.

Also, in poetry and prose the Catalans prove that they are well endowed with the superior, or, better, the supreme, qualities of mind and heart. The greatest of their living poets are Apeles Mestres, Verdaguer, Balaguer, Guimerà, Federico Soler, Matheu, and Vinyeta. Mestres is *facile princeps*. He wrote the hymn to Columbus sung at the city hall during the recent celebration, and his lyrics and narrative poems have qualities in them that will make them endure as long as the Catalan language is spoken. The principal prose writers are Narciso Oller, Emilio Vilanova, Roca y Roca, Vidal Valenciano, Bosc de la Trinxeria, and Piu y Soler. These are writers of novels and stories, and they are as popular among the Catalans as are Galdos and Valera in other parts of Spain.

During a conversation I had with Mestres lately he complained that the law compelling the Catalan children to recite their lessons in school in Castilian prevents them from ever acquiring a thorough grammatical knowledge of Catalan, and therefore from speaking it as perfectly as they should. The result of this law is that the Catalans do not speak and write either their own language or Castilian without those occasional slips that betray that something was wanting in their education. It may be properly added that Castilians regard the Catalan language as harsh and coarse; bnt, as they know but little about it, their judgment is not conclusive.

Music, as has already been stated, is well understood and well patronized by the Catalans. During the last year the new opera "Garin," composed by Breton, was first performed in the opera house of Barcelona. Its success was very great. Both the story and the music are Catalan, the story being a legend connected with Montserrat, and the score containing *motifs* and movements that locate the scenes as effectually as do the words. Until recently German instrumental music has not found much favor with the Barcelonese; but last winter a series of philharmonic concerts was given, which was very popular, and which included nearly all of the best symphonic compositions of Beethoven, Schumann, Mozart, Haydn, and Schubert. Barcelona supports a conservatory of music. Unlike the Italians, the Spaniards seem to have more talent for playing than for singing.

FÊTES.

The yearly number of fêtes is about twenty-five. The appropriation for them amounts generally to $100,000; but more than double that amount was expended during 1892, owing to the extra fête in honor of Christopher Columbus, who, it will be remembered, was received here by Ferdinand and Isabella on his return from the new world. The Columbus fête included the decoration of the principal streets of the city, a battle of flowers in the park (which now has a fine zoölogical collection), fireworks in the port, and masses in the churches. The city was crowded with an influx of visitors from far and near, and probably was never before graced with so much beauty.

BUSINESS HABITS.

Except on fête days, the small shops are opened between 7 and 8 o'clock in the morning and are closed between 9 and 10 o'clock in the evening. Business men of more importance arrive at their offices from 8 until 9 o'clock; at 1 o'clock they return to their homes for dinner; at 3 they resume their work, and do not leave for home again until 7 o'clock. As a rule, everything is paid for here in advance, and nothing is left to chance. Even in getting a check cashed at a bank one must wait from a quarter of an hour to an hour so as to allow the clerks time to consult books and letters, nor is an exception made in favor of travelers who bring letters of credit. If they do not produce passports they are not infrequently put to much annoyance to prove their identity. I therefore advise all travelers to Spain to bring passports with them. In no other particular, however, will they be unnecessarily disturbed. What Americans do not seem to be able to learn is that Spain is a very conservative nation, and is therefore not in sympathy with our restless progressiveness, which shows itself in always wishing for something better than we have. Americans, therefore, who wish to introduce here goods of any kind must not expect to have them taken up eagerly. They have first got to prove to the Spaniard that he needs their goods. For this reason I advise that American firms wishing to introduce goods here either send a representative or secure the services of a Spanish-speaking agent. In no other way can their interests be properly taken care of, nor they be made to understand just what advantages and disadvantages they will have in competing in the Spanish markets.

THE PORT.

The port of Barcelona is shaped like a funnel. Its greatest length is from north to south and is about 1 mile. Its greatest width is 1,100 meters. The depth of the water varies from 12 to 45 feet. It is commanded by the fort Montjuich, which crowns a precipitous hill that rises 752 feet above the level of the sea. Its stonework is solid and substantial, and in every respect—except that it is imperfectly lighted at night—it is an extraordinarily well-arranged and well-managed port. It was here that the two caravels, the *Niña* and *Pinta*, were built that are to proceed to Chicago with the *Santa Maria.*

The number and tonnage of vessels that entered in 1890, 1891, and 1892 were as follows:

Year.	Number.	Tons.
1890	3,467	2,137,466
1891	3,477	1,902,936
1892	3,574	2,285,611

The nationality of the vessels that entered in 1892 was as follows:

Nationality.	Number.	Nationality.	Number.
Spanish	2,610	English	342
German	40	Italian	248
Belgian	1	American	*11
Danish	19	Russian	19
French	118	Norwegian	103
Greek	30	Turkish	1
Dutch	11	Austrian	19

* All men-of-war and yachts.

The number of merchantmen was as follows: Spanish, 2,409; foreign, 949. The number of war ships was: Spanish gunboats, 24 with 292 cannon; foreign war ships, 24 with 108 cannon. The crews numbered in all 78,401 and the passengers that landed 27,186. Twelve of the ships were placed in quarantine, and two reported accidents on board.

DECLARED EXPORTS TO THE UNITED STATES.

The declared exports to the United States in 1891 amounted to $227,170.45 and in 1892 to $494,281, a gain of 213 per cent. The increase was owing to the greater demand in the United States for glycerin, licorice, and tartar. Connected with Barcelona are six agencies. From two of them—Port Mahon and Torrevieja—there were no declared exports to the United States during either 1891 or 1892. The following table shows the amount of exports from Barcelona and the other four agencies for 1891 and 1892:

From—	1891.	1892.
Barcelona	$227,170.45	$494,281.00
Grao	100,018.56	87,592.97
Tarragona	281,890.96	168,464.49
San Feliu de Guixols	273,395.39	189,139.37
Palma Majorca	2,882.37	3,376.50
Total	885,357.73	942,854.33

The increase in 1892 was thus $56,896.57. This increase, as can be readily seen, is owing exclusively to the greater amount of exports from Barcelona. Grao and Tarragona are fruit and wine districts, and formerly their exports were very large; but, owing to the increased demand for California wine and fruits, the trade in those articles between Spain and the United States is rapidly diminishing. San Feliu de Guixols is the cork district of Spain. A year ago an export duty was laid on cork, so the decrease in exportation of that article is easily accounted for.

Table showing the declared exports to the United States from Barcelona during the four quarters of 1892.

Articles.	Quarter ended—				Total.
	March 31.	June 30.	September 30.	December 31.	
Books	$80	$493	$400		$973
Glycerin	54,974	19,967	32,814	$64,272	172,027
Jackasses		20,075	16,920		36,995
Licorice		29,916	22,421	16,091	68,428
Mineral water	1,593	3,459	5,688	2,927	13,667
Oil paintings			2,061	1,600	3,661
Palm objects	63				63
Perfumery				1,250	1,250
Peppers, red	230		159	330	719
Personal effects		457			457
Ponies	219				219
Religious objects	403				403
Saffron			690		690
Skins	3,219	4,238	2,971	3,953	14,381
Tartar	28,459	37,035	60,922	45,899	172,315
Tiles		360	604	680	1,644
Wine	2,219	1,214	1,502	1,025	5,960
Sundries				429	429
Total	91,459	117,214	147,152	138,456	494,281

HERBERT W. BOWEN,
Consul.

UNITED STATES CONSULATE,
Barcelona, January 17, 1893.

SHIPPING AT MARACAIBO IN 1892.

REPORT BY CONSUL PLUMACHER.

There naturally appears a considerable diminution in the number of arrivals of vessels as compared with 1891, owing to the revolution in progress during many months. The great market for foreign merchandise imported at Maracaibo is the region south and east of the lake, which suffered especially from the war; and the importing houses at Maracaibo were forced to practically suspend all importations, even those destined for Colombia, as the rivers, which constitute the only highways, were being constantly occupied by the forces of one or the other of the contending parties, and the steamers were frequently seized for military purposes.

The American flag continued, however, to be represented about as usual. As this port remained open during the entire war, the steamers of the "Red D" line made their regular trips without interruption; and there were, moreover, four arrivals of American sailing vessels during the year. In fact, from year to year there is now but little change to note in matters pertaining to navigation. There is no steamer line competing with the "Red D," but it is said that a number of large sailing vessels, built expressly for the trade, will make schedule passages between Hamburg and Maracaibo, bringing out cargoes of general merchandise and returning with coffee. The first vessel of the projected line, a fine iron bark named the *Maracaibo*, has already come and gone, carrying to Hamburg 8,000 bags of coffee. The promoters of this enterprise have been influenced by the fact that since the imposition of duties in the United States upon Venezuelan coffee the greater quantity of this staple now goes to Hamburg, where it has been well received; and they hope, by establishing direct and regular communication between the two ports, to be able permanently to monopolize this trade. Should their anticipations be realized and the coffee not only from Maracaibo, but from the other Venezuelan ports, be diverted from New York to Europe, I fear it will have a depressing effect upon the American "Red D" line, which has been such an important agent in augmenting our commercial importance on the Spanish Main. It will not only suffer for want of home freight, but, should the Germans succeed in controlling the exports from Venezuela, it is natural to believe that their sales of merchandise to this country will increase proportionately, thereby lessening our own and depriving the American line of that amount of freight out.

Should these steamers, which, from their construction and management, are most creditable specimens of our rising deep-water mercantile navy, be forced to withdraw from this trade on account of the impossibility of securing the patronage necessary for their maintenance, it will not only be a heavy blow to our commercial interests on this coast, but will also destroy the present very excellent and regular mail communication between the United States and the northern countries of this continent. It will, indeed, be practically a return to the system, or rather want of system, of fifteen years ago, when the only direct, though irregular, mail transmission was by means of casual voyages of sailing vessels, varied by a retarded, roundabout steam route via the Antilles under the British flag.

The proposed action of the Venezuelan Government in making Puerto Cabello, instead of Curaçao (as at present), the point of transshipment for products and merchandise to and from Maracaibo, will necessarily be exceedingly injurious to the interests of the "Red D" line.

As large Atlantic steamers can not enter this port on account of the bar at the entrance of the lake, transshipment at some point is necessary, and for years past these transfers have been made at Curaçao, the American line having light-draft branch steamers plying between that island and Maracaibo, which have always given excellent and satisfactory service. This system has naturally been of immense benefit to Curaçao, and it is even safe to say that now the island has nothing else to depend upon for its commercial prosperity. The Government of this Republic seems to have concluded, however, that one of its own ports might as well profit by the advantages of this transshipment, instead of that of a foreign power, and Puerto Cabello has been selected for the purpose. From a Venezuelan point of view it is perhaps natural enough that the Government desires that the transshipments to and from a Venezuelan port be made at a point within the Republic itself, rather than at a port of another nationality; but there remains much to be done at Puerto Cabello before it can be made suitable for the purpose. There is at present but little room at its wharfs, and the operation of transshipment of cargoes would be both difficult and even dangerous, and the "Red D" line is not disposed to risk almost inevitable injury to its vessels. There is no doubt that by the expenditure of sufficient capital in enlarging channels, extending wharfage, etc., Puerto Cabello in time could be eminently fitted for purposes of transshipment, as the harbor itself is tranquil, on account of its natural protection from wind and sea. The change, if carried out at present, will cause much injury to our American line, and the more so, perhaps, as a Venezuelan line is spoken of to ply between Maracaibo and the new point of transshipment.

The project, however, finds no favor at Maracaibo, whose merchants, native and foreign, are all opposed to it as prejudicial to their interests, and they, it is understood, will make representations to that effect to the National Government.

Table showing arrivals of vessels at the port of Maracaibo during the year 1892.

Flag.	Steamers.	Barks.	Brigs.	Schooners.	Total.
American	32			4	36
British			1	5	6
French		1			1
German		1	2		3
Dutch				19	19
Italian		1	1		2
Swedish			1		1
Norwegian		2			2
Danish		1	7		8
Venezuelan				29	29
Total	32	6	12	57	107

E. H. PLUMACHER,
Consul.

UNITED STATES CONSULATE,
Maracaibo, December 31, 1892.

DENTISTRY IN MALTA.

REPORT BY CONSUL WORTHINGTON.

I have received several inquiries from American dentists asking for information on the following points: (1) Are there any laws in Malta regulating the practice of dentistry? (2) what examinations are required? (3) if any dental school exists; (4) the number of dentists in the island.

In order to obtain reliable information on the above points, I interviewed Dr. S. L. Pisani, the chief government medical officer of Malta, and obtained from him, over his signature, the information that follows:

MALTA, *December 19, 1892.*

There is a law regulating the practice of dentistry. The law runs thus:

"It is prohibited to practice the profession of physician, surgeon, surgeon dentist, apothecary, accoucheur, or midwife, or phlebotomist without a license from the head of the government.

"If the applicant shall not prove that he has been admitted to practice his profession under the provisions of an act of the Imperial Parliament [of Great Britain] the application for the license aforesaid must be accompanied by a certificate from the medical board, declaring the good character and qualifications of the applicant.

"The board shall not grant such certificate until the applicant shall have deposited with the board the act of the University of Malta, or of any other scholastic establishment out of these islands, showing that the same applicant has pursued the requisite studies."

Before granting the certificate declaring the character and qualifications of the applicant, the board subjects him to an examination on dental anatomy, physiology, pathology, therapeutics, operations, and preparation of artificial teeth.

No school of dentistry exists in Malta.

There are three surgeon dentists, besides others allowed to draw teeth.

S. L. PISANI, M. D.,
Chief Government Medical Officer.

The three surgeon dentists enumerated by Dr. Pisani are one English and two Maltese. All practice the "old style," and are not at all "up to date" in their profession. To quote myself:

There is not a really first-rate dentist in the Maltese Islands; but, such as they are, they do a very considerable business. I have been written to by American dentists as to the probability of their succeeding in case they established themselves here, and I have invariably replied that I thought they could do well if they were the right sort. They must have patience, industry, skill, and some capital to rent and furnish suitable rooms. American dentists are justly popular everywhere in Europe, and the conditions are ripe for one to introduce himself in Malta. Lots of dental work goes away from the island that would be done here if the dentists were skillful in modern dentistry. Their charges are high and their work inferior, as are the tools they use.

The population of the Maltese Islands is upwards of 170,000 natives, and the English garrison, fleet, and residents swell the number to 185,000.

JOHN WORTHINGTON,
Consul.

UNITED STATES CONSULATE,
Malta, December 20, 1892.

THE WEST OF ENGLAND.

REPORT BY CONSUL FOX, OF PLYMOUTH.

The trade and commerce of this district in 1892 has not suffered so severely as in many others, and the record of last year may be looked upon as a fairly satisfactory one. Great efforts have been made to increase the commercial importance of Plymouth and to impress upon shipping companies the advantage of the town as a port of call for outward and homeward bound steamers.

LOST INDUSTRIES.

Within the last few years many industries in the west of England have been lost. The manufacture of lace is no longer prosperous, the introduction of machinery causing it to suffer more and more. The woolen industry is far from what it once was, and the manufacture of cider is a constantly decreasing quantity. Axminster carpets were famous some years ago, whereas now it is hardly possible to get such carpets from the town whose name they bear. Another art which has been entirely lost in Plymouth is the manufacture of porcelain china, which was very beautiful in its modeling, glaze, and design.

Basket-making and strawberry culture have been developed in some parts of Cornwall to a gratifying degree.

WORKMEN'S DWELLINGS.

Building operations, especially in workmen's dwellings, have been largely increased at Plymouth and Devonport; for years the whole district has been sadly lacking in suitable dwellings for this class of people. Plymouth, for example, even allowing for its open spaces, has an average density of population of 56.6 per acre.

TRADE DISPUTES.

The great industrial dispute of the year, so far as this district is concerned, has been at Buckfastleigh. Commencing about the end of 1891, it was continued for several months; but the cause of trade-unionism did not prosper, the manufacturers still being able to carry on their work, though short-handed. It needed no great foresight to perceive that the dispute could not be interminable; it was a hopeless contest, and at last the work people realized this fact, despite the delusive representations of the self-constituted leaders.

At the beginning of May the plasterers of Plymouth struck for increased wages, but the dispute did not last long, a compromise being arrived at.

Apart from these two cases, there has been very little disagreement between employers and employed.

AGRICULTURE.

The year 1892 must be classed as one of the farmers' worst. The price of beef has been very unremunerative, alike to rearer and feeder. The rearer, when he took his steers to market to meet his Lady-Day payments, met with grievous disappointment, and stock of inferior breed was often unsalable. The grazier, in his turn, after buying cattle very cheap, was hard put to realize the profit from the price made after his cake bill was paid, oil cake being a necessity on account of short keep from the dry season. Dairy produce has been the one redeeming feature.

The old saying that the sheep has a golden foot seems no longer true. Sheep this year have been sold for one-half of what was regarded as a fair average a few years since. Of wool, the tale is sadder still; in fact, one farmer sold his for one-half of the lowest price his father ever sold it in an experience of forty years' farming.

Crops have been a good average. The price of wheat was the lowest on record. There was a good average crop of roots. Devonshire farmers have not suffered so severely from the existing agricultural depression as their brothers in the midland and eastern counties, the fact being that they follow a mixed course of farming and rely on the many and various products of the land.

SHIPPING.

Plymouth shipping returns give the following statistics relating to 1891 and 1892:

Table showing the imports at the Great Western Docks.

Description.	1891.	1892.
	Tons.	*Tons.*
Grain	114,684	106,905
Coals	40,556	20,626
Clay	19,083	14,661
Manures	15,274	17,564
Guano	612	430
Other articles	144,301	164,578
Total	325,510	324,364

The number of vessels entered at the Great Western Docks in 1891 was 2,962 of 558,252 registered tons; in 1892, 2,970 vessels of 579,886 registered tons. The mails in and out numbered 324 in 1891 and 307 in 1892. There was a slight falling off in the number of passengers landed.

At Sutton harbor the number of vessels entered in 1891 was 907 of 108,582 registered tons; in 1892, 1,025 vessels of 116,182 registered tons. These figures show that in spite of depression there has been a considerable increase of trade in the east end of the port.

The number and tonnage of vessels entered at Cattewater harbor was as follows: In 1891, 1,379 vessels of 163,851 registered tons; in 1892, 1,497 vessels of 158,918 registered tons.

The china clay exported last year amounted to 33,864 tons, as against 34,134 tons in 1891; fire bricks amounted to 5,716 tons, as against 8,507 tons in 1891.

Imports of coal amounted to 35,197 tons; imports of wood amounted to 25,660 tons.

The total returns, therefore, show that the port has prospered beyond the best expectations of traders.

GUERNSEY.

Mr. William Carey, United States consular agent at Guernsey, reports:

> There has been a continued exportation of flower bulbs to the United States, but the export of Guernsey cattle has in no way improved since last year.

THOS. W. FOX,
Consul.

UNITED STATES CONSULATE,
Plymouth, January 17, 1893.

STRIKE OF THE SAAR COAL-MINERS.

REPORT BY CONSUL WAMER, OF COLOGNE.

The coal mines in the district of Saar, in which there are upwards of 30,000 workmen employed, are owned and operated by the state of Prussia. In the beginning of January of this year something like 20,000 men struck for higher wages and a decrease in the hours of work. The suddenness with which the strike was commenced was somewhat of a surprise, and it certainly occurred at a most unfavorable period, considering the great depression which has prevailed in the trade and business of Germany during the year that has just closed. It is firmly held that this strike has been brought on more by the agitation of the Social Democrats than the workmen themselves, and that the latter have shown great indiscretion in thus being led astray by the tactics of the former. The most remarkable feature of the strike has been the active part which the women have taken in it. They have called meetings and have addressed the men in most violent language, urging them not to give up in their efforts, but to hold out to the bitter end.

The untimeliness of this strike has, however, already begun to show itself by the men fast returning to work, and without having accomplished what they apparently unjustly demanded. They demanded eight hours work per day, including the pit descent and ascent, increase in wages, the establishment of a board of arbitration (to be composed of two-thirds workmen and one-third officials of the mines) for settling all disputes arising out of the labor contract and adjusting wages, free supply of miners' tools, no overwork or extra shifts, a revision of the fines, and a few other minor and unimportant changes.

As to the wages of the coal-pickers, they averaged in January of last year $1.18; in February, $1.16; in March, $1.17; in April, $1.18; in May, $1.16; in June, $1.12; in July, $1.11; in August, $1.10; in September, $1.11; in October, $1.10; in November, $1.07.* From these amounts must be subtracted about 1½ cents for lamp oil and tools, which the workmen have to furnish themselves. Their contribution to the sick and invalid fund amounts to about 5¼ cents. Taking all the workmen together, the average wages for the same period as above were as follows: In January, 99 cents; in February, 98 cents; in March, 99 cents; in April, 98 cents; in May, 98 cents; in June, 95½ cents; in July, 94½ cents; in August, 94¼ cents; in September, 94¾ cents; in October, 94 cents; in November, 92 cents. In no other industries in Germany are such wages earned. The decrease shown in the above figures from January to November is said not to stand in the same proportion as the decrease shown in the coal prices, which show a falling off of 12.4 per cent in the latter and of only 7.3 per cent in the case of wages.

With reference to the hours of work in the Saar district, there have existed since the great strike in 1889 eight hours' work per day, not including the pit descent and ascent. Previous to the strike of 1889 the work hours per day were longer—first ten and then nine hours. During the said period of three years the hours have been reduced to eight, excluding the pit descent and ascent. As it stands in the regulations at present, there shall not be occupied more time than one hour for the pit descent and ascent.

In the Rhenish and Westphalian districts the miners have, out of sympathy for the miners in the Saar district, likewise precipitated a strike, and there are at present something like 20,000 men, out of the 150,000 employed in these collieries, on strike; but the indications are that this strike will soon end. And yet while these strikes are going on one reads in the papers the appeals which are being made by the laboring people in many cities of the State for employment. The Reichstag has just been appealed to by the Social Democratic members on the question of the present distress, as they maintain, of the laborers who are out of work, and calling upon the State to lend its aid in giving employment to these people.

WM. D. WAMER,
Consul.

UNITED STATES CONSULATE,
Cologne, January 14, 1893.

THE MADEIRA ISLANDS.

REPORT BY CONSUL HEALY, OF FUNCHAL.

PHYSICAL FEATURES.

The consular district of Madeira is composed of the islands of Madeira, Porto Santo, and the Desertas. The Desertas are three in number, viz:

Ilha Chão, the smallest of the three, is 1 mile in length, three-fourths of a mile wide, and 325 feet high. Its name indicates a plane. It is a level piece of ground, and has no water.

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*These amounts have been reduced from the German mark at the rate of 4.15 marks to the dollar.

Deserta Grande lies a short distance southwest of it, is 9 miles in length, three-fourths of a mile wide, and 1,600 feet high.

Ilha Bugio ("bugio" means a big monkey, or one who undertakes to imitate another, and, as this island undertook to imitate Deserta Grande and failed, hence Bugio, a monkey) lies south of and close to the latter, is 4 miles in length, three-fourths of a mile wide, and 1,300 feet high.

They lie 10 miles from the nearest land and 22 miles southeast of this city, and present a fine view from here. Soundings along the banks of these islands range from 45 to 80 fathoms. They are barren and uninviting. Their chief inhabitants consist of rabbits and wild goats. The islands are the property of Alexander F. Camacho, esq., of this city, who sometimes gives a permit for a consideration to hunting parties. The islands, too, are noted as being rich in weeds used in dyeing, particularly the orchilla weed, which grows on the rocks and is picked three times a year. The lobo, or seal, lives in caves in these islands, particularly in the Deserta Grande. They are nearly extinct in these waters now, though a few days ago a young lobo was caught on the beach here. I understand that it was sent to London by a gentleman here.

EARLY HISTORY.

The Madeira group was discovered in 1418 or 1419 by John Gonsalves Zargo in an expedition set on foot by Prince Henry, the navigator. Zargo died in this city. He built three churches here. The first was dedicated to St. Catharine; the second, Nossa Senhora do Calhão; and the third, Nossa Senhora do Conceçuo da Cinna ("cinna" means upper, to distinguish it from the lower). He governed forty-seven years, and in his old age used to be carried out in the sun to administer justice. He was buried in the church which he built in 1450. Additions have been made to it, however, and a convent added, the Santa Clara.

This island, as well as Porto Santo, was very much infested with French Huguenots and Moorish pirates during the first Portuguese war in Africa. In October, 1566, three French vessels, under their leader, De Montluc,* and 2,000 men landed at Praia Formosa (pretty shore), some 3 or 4 miles west of this city, and marched without opposition into the town. The inhabitants, terror stricken, barricaded. The French remained fifteen days and pillaged the churches. They attacked the Francescan monastery, torturing and killing all the brotherhood but nine, who had fled and hidden themselves. Father Rodrigues, the treasurer of the brotherhood, hid the sacred vessels and ornaments of the church, and, despite all the agonizing torments inflicted upon him, he refused to disclose their hiding place. He died in a few days. The cathedral was then in all its glory. Its principal treasures were carried off to São Antonio de Sura before the enemy could lay hands on them. The damage which they did in an hour required three hundred years to repair. An army of 700 men was mustered, 200 of whom were killed. The leader of the pirates paid the penalty with his life. After fifteen days of rapine and plunder the pirates departed. The governor, D'Ornellas, was put to the sword.

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*Montluc was son of Marechal de Montluc, one of the fiercest enemies of the Huguenots. Portuguese chroniclers call them Huguenots.

Funchal, the old city in the basin, was once a walled city. Some of the old walls and gates still exist. Their construction was commenced April 14, 1572, by order of King D. Sebastião; they were completed in 1637. Their construction was continued during the Spanish dominion in Portugal (1580–1640). The Madeirenses were the first to break the Spanish yoke and drove them from this island in January, 1641. The walls were partially removed during the reign of D. Pedro II (1667–1706) at the request of D. Lourenço d'Almeida, who was governor of the island at the time. D. João IV was then proclaimed King of Portugal. In 1514 a bishopric was created here, and in 1539, by a decree of Pope Paul III, it was created into an archbishopric. When an archbishopric was created at Goa in 1547, the archbishop here was transferred to Goa. Since then no archbishop has been appointed for Funchal.

Fructuoso says in his "Saudades da Terra," chapter 50, that the first male child born on this island was to a man named Ayres, who was a companion of Zargo when he settled here. This child, called Adam, built one of the first churches on the island. The first female child, who was born to the same man, he called Eve. The British have occupied this island twice during this century. The first occupation was from July 24, 1801, to 1802, and the second was from December 24, 1807, to October 7, 1814.

SUGAR AND WINE INDUSTRIES.

The earliest account we have of the introduction of sugar cane on this island is in 1425. It was brought from Sicily by Zargo, and the first plat of cane planted on the island was on the square where the cathedral now stands. The construction of the cathedral was commenced in 1485, and it was completed in 1511. In a report dated 1445 it is stated that John Gonsalves Zargo, the discoverer of this group, "has caused much cane to be planted, which has done well." From the beginning of the cane culture it progressed at a very rapid rate, so much so that in 1498 the annual production reached 130,000 arrobas (equal to 4,160,000 pounds), which affected and reduced the price of sugar all over Europe. Dom Manuel, the King of Portugal, seeing the effect that such a large supply of sugar had on the markets of the world, issued a royal decree that the output in any one year should not exceed 120,000 arrobas, "saving a little more by special favor." The decree even went so far as to say how much each country should receive. This restriction by the King, however, was found to be in contravention of the laws of trade, and for that reason was withdrawn. It might be mentioned here that one-fifth of the sugar went to the Crown. In 1502 the culture of the cane had reached its highest point, when there were one hundred and twenty sugar mills on the south slope of the island.

The introduction, in the meantime, of sugar cane into the West Indies proved very destructive to the industry on this island, whose limited hillsides could not cope with the greater area and richer soil of the Antilles. This necessitated a change from cane to vine culture, which proved to be of greater importance to the people and enriched the island far beyond their expectations. The fame of the Madeira wine spread all through Europe, which greatly enhanced the reputation of the island. The cultivation of the vine was carried on with unabated success till 1852, when the phylloxera appeared and nearly swept it out of existence, which caused great distress in all branches of business; and it may be safely stated that among its greatest sufferers were the coopers.

The people, by reason of the failure of the vine, were again obliged to return to their "first love," the cultivation of the cane, and its manufacture into aguardiente, which is used in the manufacture of wine. After some time machinery was introduced from England, and the manufacture of sugar was again begun here. The following statistics from 1875 to 1885 show the value of the product, including the sugar, molasses, and aguardiente:

Year.	Value.	Year.	Value.
1875	$363,800	1881	$399,600
1876	412,560	1882	501,120
1877	380,160	1883	360,720
1878	594,432	1884	308,880
1879	413,640	1885	304,560
1880	442,800		

For the years 1886 and 1887 I have not the statistics, as the amount produced was merely nominal; and from the latter date to 1891 no sugar was made on the island, though there were about 9,000,000 kilograms (1 kilogram = 2.205 pounds) of cane produced in 1891, which was manufactured into aguardiente. In the spring of 1892 there were 10,500,000 kilograms of cane manufactured into aguardiente, valued at about $160,000, and 3,000,000 kilograms made into sugar, which produced 204,000 kilograms, worth $45,000, or a total of about $205,000.

Cane was lately imported here from Mauritius, and at present has only a very low density, the average being only 8° to 9° Baumé, but improving every year. The cane formerly cultivated was Bourbon, and averaged 11° to 12° Baumé. The present price of cane is $1.40⅖ to $1.52 per 100 kilograms; the former price of Bourbon cane was $1.72⅘ to $1.83⅗ per 100 kilograms.

The outlook for the cane crop this coming spring is splendid, for the reason that there is a larger area planted than in former years, aided by some good rains the latter part of September, with copious showers through October. Such rains at this season are exceptional, but when they come it means a good crop the next season. The rainy season begins about the middle of November; and it did not break the record this year, as on the 18th instant we had immense rains, which insures a very heavy cane crop. Should it gain in its saccharine qualities, as it has been doing for some years, and come up to the standard of the Bourbon, the husbandman promises to be fairly well rewarded for his labors, unless the price follows in the wake of the must this year, which has been the lowest for many years, as the crop was heavy—that, too, in a depreciated currency, which left the vine-grower a light income for his labors, while the wine merchant makes all his sales on the gold standard. The chief sufferer by an inflated or cheap currency here is the laborer and farmer, because the price of all commodities advances, including that of transportation, while the wages of the laborer and the produce of the farmer are the last to advance. I never saw it more plainly illustrated to my satisfaction before.

A large portion of the aguardiente previously made here had been made from molasses brought from the West Indies; but the farmers and cultivators of the cane raised such a storm that a prohibitive duty has been placed on molasses and its importation discontinued.

There are several sugar refineries here where three qualities of sugar are made.

The cane can not be profitably cultivated at a higher elevation than 1,000 feet; at a greater altitude the warmth is very frequently checked by the shifting clouds from the mountains, which causes premature fermentation at the top of the stalk. The cane then is only fit for fodder for stock. It is stated by parties who claim to know that cane here does not attain as vigorous a growth as in our Gulf States or the West Indies. That, of course, is due to the fact that the land is old and worn out, and does not receive the amount of fertilizers which it ought to have; indeed, it is a mystery to me how the hillside lands of Madeira produce as well as they do. It seems marvelous, considering the further fact that the heavy rains are severe on those hillside lands.

The failure of the vine here was a great loss at the time, but I am led to believe that it was a "blessing in disguise," for the reason that the exclusive culture of the vine created a monopoly in the hands of a few men. At any time that a lull came in the wine market it left the producer in rather stringent circumstances, but the introduction of cane culture again has supplied him with abundance of feed for stock and swine from the trimmings from the cane through the season. Herein lies a good profit to a man with a small *fazenda*, and in a country, too, where there are no pastures. He gets the principal part of his feed from the cane trimmings. Records in my possession presented by a friend a few days ago, dating back to 1774, show the amount of wine produced in each year since, and this corresponds nearly with the amount shipped in each year. They also show the average price now and the price in olden times. It will be seen that the wine trade here, like industries elsewhere, has had its bright and dark days.

Table showing the wine shipments of Madeira.

Year.	Shipments.	Year.	Shipments.
	*Pipes.**		*Pipes.**
1774	7,093	1847	5,577
1788	11,819	1848	5,829
1789	11,762	1849	7,379
1790	13,713	1851	7,031
1798	12,429	1852	6,690
1799	14,666	1853	4,204
1800	16,981	1854	2,227
1801	16,732	1855	1,176
1802	14,933	1856	1,891
1803	12,967	1857	1,798
1804	11,041	1858	1,281
1805	13,223	1859	1,328
1806	14,015	1860	1,013
1807	16,701	1861	1,289
1808	13,994	1862	981
1809	15,363	1863	723
1810	11,273	1864	840
1811	9,575	1865	536
1820	13,554	1866	823
1821	9,916	1867	849
1822	10,558	1868	874
1823	8,083	1869	987
1824	10,980	1870	1,010
1825	14,431	1871	1,798
1826	9,398	1872	1,684
1827	8,424	1873	1,927
1828	9,603	1874	1,742
1829	8,104	1875	2,213
1830	5,499	1876	2,300
1831	5,533	1877	2,476
1832	7,163	1878	2,030
1833	8,633	1879	2,923
1834	8,875	1880	3,691
1835	7,730	1881	3,447
1836	7,913	1882	4,260
1837	8,123	1883	3,854
1838	9,832	1884	4,399
1839	9,014	1885	4,905
1840	7,976	1886	5,227
1841	7,157	1887	5,708
1842	6,270	1888	5,875
1843	7,386	1889	5,195
1844	7,054	1890	5,592
1845	7,179	1891	6,346
1846	8,190		

* 1 pipe = 110 gallons.

The figures for some years were not obtainable. It will be seen that vast changes have taken place in the vine culture since 1774. The highest amount produced in any one year was in 1813, when it reached 22,000 pipes, though it is not given in the table above; I received it from other sources. The highest record which I could discover for the eighteenth century for any one year was 30,000 pipes. In an earlier day much larger quantities were produced; quite a contrast between 30,000 pipes and 536, the lowest.

Table showing the shipments from 1887 to 1891.

Year.	Shipments.	Value.
	Pipes.	
1887	5,708	$782,196.70
1888	5,875	821,228.10
1889	5,195	736,587.50
1890	5,592	736,587.50
1891	6,346	849,710.91

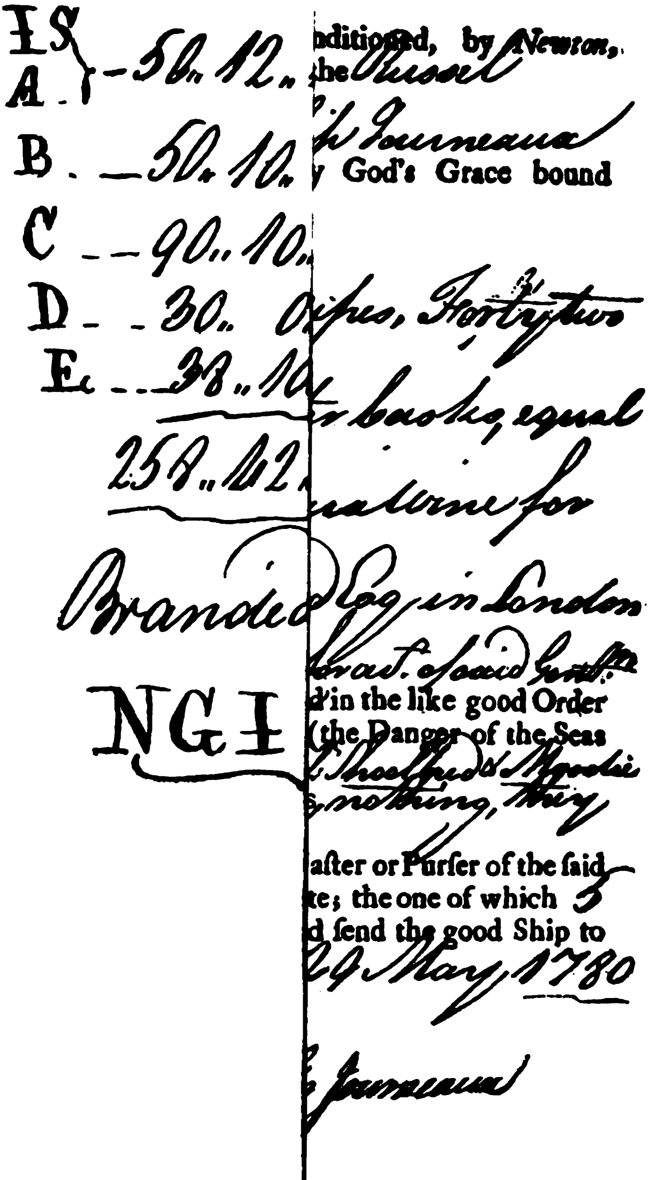
This makes a total for the past five years of 28,716 pipes, the average price being $136.73 per pipe (equivalent to about $1.24 per gallon), or a total of $3,926,310.71, of which during the same period there was exported to the United States direct $114,784.40. This is not, however, a fair index of the amount of Madeira wine which goes from here to the United States, for the reason that large quantities are shipped by the merchants here to England, where it is stored and afterwards shipped to the United States. Hence a good deal of Madeira wine reaches our country that is not entered here; but the amount, on the whole, is small as compared with shipments to America in colonial days. Two consignments of wine, amounting to 500 pipes, were sent from here to America at one time in 1780; one of the consignments consisted of 300 pipes. I send herewith a facsimile of the old bill of lading. Its antiquity and the style in which it was written will no doubt be interesting to American readers.

This, in brief, is the outline of the rise and fall of the wine trade in Madeira, and the outlook is good. The yield the present season has been the largest for several years, but the price to the producers is the lowest, as I said before. Wine can be bought here at prices varying from 80 cents to $30 per gallon. There are a few small lots of the vintage of 1755, the year that Lisbon was destroyed by the earthquake, in the hands of some Portuguese gentlemen. These gentlemen, however, will not sell at any price, as the wine has been handed down from father to son.

Besides the shipment of Madeira wine to America in colonial days, there were "other goods" also consigned. The people of the United States and Madeira alike are more than pleased that we no longer import such "goods" from this island as is described in the following bill of lading, dated in Madeira, September 11, 1761:

SHIPPED by the Grace of God, in good Order and well Condition'd by: **Newton & Gordon** in and upon the good Ship called the: **Fame.**—whereof is **Master**, under God, for this present Voyage: **Viner Leaycraft** and now riding at **Anchor**, in the **Road of Funchal** and by God's Grace bound for: **New York** — to say:

One negro man named York, consigned to W^{m} Th^{os} Newton Merchant in New York, being mark'd and number'd as in the Margin [A negro Man named York] and to be deliver'd in the like good Order, and well Condition'd, at the aforesaid Port of New York—(the danger of the Seas only excepted) unto, the said W^{m} Thomas Newton or to his Assigns, he or they paying Freight for the said goods with Primage and Average accustom'd.



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29 May 1780

Fourneaux

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In witness whereof the Master or Purser of the said Ship hath affirm'd to three Bills of Lading, all of this Tenor and Date; the one of which three Bills being accomplish'd, the other two to stand void. And so God send the good Ship to her desir'd Port in Safety. Amen.

Dated in Madeira 11 September 1761.

VINER LEAYCRAFT.

IMPORTS.

The aggregate value of imports into this district for the past five years amounted to $5,131,143.09, which paid duties amounting to $1,444,516.52. This includes coal importations to the amount shown below. While coal is charged up here in the table of duties, still it is free, as there is a rebate or drawback on all coals shipped on passing steamers. The small amount consumed in the city pays a nominal duty of, say, 35 cents per ton, or perhaps less.

Table showing the amount of coal imported from 1887 to 1891.

Year.	Quantity.	Value.	Duties.
	Tons.		
1887	57,078	$369,708.10	$18,866.01
1888	59,411	372,832.20	20,853.51
1889	80,835	441,791.42	28,373.10
1890	67,575	229,110.68	23,718.63
1891	68,935	247,030.34	24,196.33
Total	333,834	1,640,472.74	116,007.58

Table showing the value of imports from the different countries from 1887 to 1891.

From—	Value.					
	1887.	1888.	1889.	1890.	1891.	Total.
West coast of Africa	$3,002.98	$4,468.66	$4,965.18	$1,996.41	$8,432.32	$22,865.53
Germany	18,775.89	33,690.60	36,932.19	48,940.60	69,314.21	204,653.49
Austria	1,211.22	2,003.75	5,028.31	1,553.25	2,222.42	12,018.95
Belgium	290.95	763.45	272.80	462.35	3.24	1,792.79
Brazil	122.04	443.08	255.07	64.80	16.20	901.19
Chile				4,804.49	449.28	5,253.77
China		59.40	124.20	802.98		986.58
Egypt		290.19	1,206.36		3,240.00	4,736.55
United States	101,012.07	88,425.97	90,973.83	124,993.73	193,806.59	599,212.19
France	53,968.90	28,407.88	23,967.53	19,366.18	21,759.52	147,470.01
Spain	2,059.02	1,884.92	1,432.48	166.32		5,542.74
Holland	1,243.18	745.52	216.54	925.34	10.26	3,140.84
England	598,382.08	772,719.80	850,749.78	653,117.30	642,199.76	3,518,867.70
Italy	39.42	1,557.47	194.40	226.80		2,018.09
Japan	9,701.75				55.25	9,757.00
Morocco	114,560.62	113,750.24	110,667.49	171,374.59	79,622.35	589,975.29
Montevideo		135.00	801.62			936.62
Norway	216.00	643.14			118.80	977.94
Russia		155.52	1.62		529.20	686.34
Sweden			577.80	698.76		1,276.56
Switzerland		373.68			97.20	470.88
Total	904,586.12	1,050,618.27	1,128,367.20	1,029,493.90	1,021,866.60	5,131,143.09

Table showing the duties paid on imports from 1887 to 1891.

From—	Duties.					
	1887.	1888.	1889.	1890.	1891.	Total.
West coast of Africa	$557.40	$1,308.18	$1,770.29	$479.20	$1,119.41	$5,234.48
Germany	7,391.31	12,244.69	14,201.57	18,424.36	23,933.40	76,195.33
Austria	137.14	1,066.82	1,419.14	688.66	806.08	4,117.84
Belgium	189.79	195.96	101.93	245.57	.68	733.93
Brazil	210.53	712.10	218.72	48.11	14.30	1,203.76
Chile				792.62	885.92	1,678.54
China		11.76	268.26	1,342.05		1,622.07
Egypt		469.61	1,880.98		584.49	2,935.08
United States	39,095.90	34,985.51	16,347.23	57,661.39	48,748.31	196,838.34
France	7,359.42	915.45	9,439.52	539.78	6,994.62	25,248.79
Spain	355.49	400.39	217.51	33.70		1,007.09
Holland	1,430.68	942.69	355.92	848.95	6.13	3,584.37
England	165,841.22	233,839.94	277,483.40	166,156.03	280,721.46	1,114,042.05
Italy	3.94	120.88	10.93	46.87		182.62
Japan	5,302.48				2.41	5,310.89
Morocco	87.42	446.24	323.53	1,090.69	1,102.71	3,050.59
Montevideo		67.50	196.08			263.58
Norway	16.85	50.20			18.57	85.62
Russia		38.71	.86		25.80	65.37
Sweden			501.72	530.92		1,032.64
Switzerland		57.37			26.17	83.54
Total	227,979.57	287,864.00	324,747.69	258,928.90	364,996.46	1,444,516.92

It will be seen by the foregoing table that the average annual imports from 1887 to 1891, inclusive, amounted to $1,026,228.62, of which $328,394.55 was the average for coal, leaving a balance of $698,134.07 as the average of actual local consumption. A little coal being consumed here might make the local consumption $700,000. The imports direct from the United States for the term above indicated were $599,212.19. That other American merchandise came here and was entered as British goods there is no doubt—corn, for instance. It will be seen by the foregoing figures, laying aside coal, which comes principally from Cardiff and some from Newcastle, England, and not consumed on the island, that about 14 per cent of the commodities which are imported here come from the United States; in 1891 it was about 25 per cent.

There is a vast trade carried on in the Azores, the Canaries (Spanish), the Cape Verde Islands, the west coast of Portuguese Africa, Tangier, and this island, and nearly all the commodities they purchase can be supplied by our people of better quality and cheaper than they can get them in Europe. Not only that, but the people of these countries are anxious for direct trade with the United States. What is needed is rapid and direct communication with this part of the world, where our flag once ruled the wave. It is to be hoped that it will again have the supremacy which it once possessed in these waters.

Table showing the quantity and value of the principal articles of import.

Articles.	1887.		1888.		1889.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*		*Tons.*	
Dry goods	142	$76,122.97	197	$135,263.52	271	$123,746.70
Corn	6,024	139,732.72	5,863	133,382.70	5,848	116,889.74
Wheat	1,864	60,691.68	1,844	67,160.34	1,541	54,373.55
Rice	817	32,236.38	420	18,802.22	343	15,600.74
Molasses	1,673	40,665.10	1,022	24,382.62	1,403	43,273.82
Other articles	....	246,251.34	....	263,426.58	....	283,979.44
Total	....	589,700.19	....	642,417.98	....	637,863.99

Articles.	1890.		1891.	
	Quantity.	Value.	Quantity.	Value.
	Tons.		*Tons.*	
Dry goods	201	$129,736.80	212	$141,804.66
Corn	7,678	181,383.15	3,515	92,198.84
Wheat	2,205	79,636.51	2,947	137,319.39
Rice	491	21,380.70	466	21,048.14
Molasses	1,335	37,119.47	1,919	58,761.42
Other articles	....	406,392.02	....	260,394.03
Total	....	846,648.65	....	661,526.48

EXTENDING AMERICAN TRADE.

I had the pleasure, a few days ago, of having a long and interesting interview with Mr. Carlos Hart, engineer for a manufacturing company in the State of New York. Mr. Hart left New York on July 8, 1891, on the White Star steamer *Britannic* for a trip to the Canaries, the southwest coast of Africa, Cape Verde Islands, and this place, where he has established an agency. He went from here to the Azores and from there to Lisbon, where he thinks the company ought to have headquarters, inasmuch as a great deal of the heavy business done in Portuguese Africa is owned or controlled by residents of Lisbon, on whom he would have to draw for his sales. He went to those countries to look after machinery sent out by the company referred to and with a view of increasing business at the same time. Mr. Hart received a very warm reception wherever he traveled. He has done a very flourishing business in sending American machinery and implements where they were hitherto unknown.

If we had a line of steamers to the African countries and the adjacent islands and a corps of men of Mr. Hart's ability and experience, we would, in a short time, practically control the trade of those markets.

SHIPPING IN AFRICAN WATERS.

There is a growing trade in all these African countries. In 1890, 742 vessels, of over 1,000,000 tons, entered here. Las Palmas, Grand Canary, as a port of call, has much more shipping, as will be seen by the following entrances for the past four years: In 1888, 962 vessels; 1889, 1,180; 1890, 1,440; 1891, 1,577. It will be seen by this that there is some business going on in this part of the world. It is true, of course, that many of the vessels which call here call also at Las Palmas; however, it is safe to state that Las Palmas is growing faster as a port of call than Funchal.

Table showing the number and tonnage of vessels entered at Funchal from 1887 to 1891.

Nationality.	Sailing.		Steam.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
1887.						
British	24	5,301	360	528,992	384	354,293
Portuguese	43	7,991	65	88,456	108	96,447
German	2	605	113	146,910	115	147,515
Belgian	1	828	37	51,223	38	52,161
Dutch	....	....	9	7,470	9	7,470
American	2	1,135	....	....	2	1,135
Other nations	11	6,025	12	4,613	23	10,658
Total	83	21,885	596	807,674	679	849,539
1888.						
British	32	9,085	371	499,264	403	508,349
Portuguese	54	11,336	71	92,659	125	103,995
Belgian	....	....	40	65,172	40	65,172
German	5	1,733	128	174,084	133	175,817
Dutch	....	....	10	6,728	10	6,728
American	1	592	....	....	1	592
Other nations	10	3,525	161	224,837	171	228,362
Total	102	26,271	781	1,062,744	883	1,089,015
1889.						
British	25	4,582	405	598,587	430	603,169
Portuguese	53	10,700	65	95,634	118	106,334
German	10	4,547	141	196,789	151	201,336
Belgian	....	....	46	70,941	46	70,941
Dutch	....	....	12	13,918	12	13,918
American	1	361	....	....	1	361
Other nations	11	3,231	24	26,901	35	30,132
Total	100	23,431	693	1,002,770	793	1,026,191
1890.						
British	16	3,667	390	606,683	406	610,350
Portuguese	69	13,273	72	153,516	141	166,787
Belgian	....	....	43	74,696	43	74,696
Dutch	1	180	12	9,927	13	10,107
German	2	1,455	105	147,883	107	149,338
American	2	939	....	....	2	939
Other nations	7	1,985	23	31,003	30	32,888
Total	97	21,499	645	1,023,708	742	1,045,205
1891.						
British	20	5,455	356	630,068	376	635,523
Portuguese	58	12,625	68	112,407	126	125,032
German	3	1,981	73	102,917	76	104,898
Belgian	....	....	41	81,628	41	81,628
Dutch	....	....	14	13,192	14	13,192
French	2	4,500	16	34,598	18	39,098
American	1	245	1	1,270	2	1,415
Other nations	7	6,344	29	11,461	27	17,805
Total	91	31,150	588	987,441	680	1,018,591

Table showing the number and tonnage of vessels cleared from Funchal from 1887 to 1891.

Nationality.	Sailing.		Steam.		Total.	
	No.	Tons.	No.	Tons.	No.	Tons.
1887.						
British	26	5,704	352	520,901	378	526,605
Portuguese	39	7,142	67	94,831	106	101,973
German	2	605	111	143,206	113	143,811
Belgian			37	51,233	37	51,233
Dutch			8	6,646	8	6,646
American	2	1,135			2	1,135
Other nations	7	2,060	12	4,613	19	6,673
Total	76	14,586	587	816,817	663	840,076
1888.						
British	30	8,759	364	500,196	394	517,965
Portuguese	51	10,707	69	90,491	120	101,198
German	5	1,733	128	174,084	133	175,817
Belgian			42	67,782	42	67,782
Dutch			10	6,728	10	6,728
American	1	592			1	592
Other nations	4	1,236	93	50,615	97	51,851
Total	91	23,027	706	889,896	797	921,933
1889.						
British	25	4,582	404	600,204	429	604,786
Portuguese	50	9,944	65	95,746	115	105,690
German	9	4,078	142	197,789	151	201,867
Belgian			46	70,941	46	70,941
Dutch			12	13,918	12	13,918
American	1	361			1	361
Other nations	10	3,036	24	26,901	34	29,937
Total	95	22,001	693	1,005,499	788	1,027,500
1890.						
British	15	3,393	387	602,071	402	605,464
Portuguese	64	12,782	71	151,893	135	164,675
German	2	1,455	106	148,871	107	150,326
Belgian			42	73,830	42	73,830
Dutch	1	180	12	9,927	13	10,107
American	2	939			2	939
Other nations	5	1,157	22	29,827	27	30,984
Total	89	19,906	640	1,016,119	728	1,036,325
1891.						
British	17	4,697	354	625,307	371	630,004
Portuguese	54	12,198	68	112,407	122	124,605
German	3	1,981	73	102,917	76	104,898
Belgian			40	76,928	40	76,928
Dutch			14	13,192	14	13,192
French			16	34,598	16	34,598
American	1	245	1	1,170	2	1,415
Other nations	10	2,405	18	10,062	28	12,467
Total	85	21,526	584	976,581	669	998,107

When Napoleon was on St. Helena we had 1,500,000 tons of shipping in the eastern Atlantic; now, of the 3,646 vessels which entered this port during the past five years, only 8 were American.

A Mr. Esmeraldo, who is 95 years old and is the eleventh in descent from John Esmeraldo, tells me that he has seen as many as 30 American vessels anchored in the roadstead here at one time. The venerable old gentleman can not understand what has become of American shipping.

EXPORTS.

Table showing the quantity and value of the principal articles of export.

Articles.	1887.		1888.		1889.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
Wine........................pipes...	5,708	$936,254.70	5,872	$819,544.80	5,195	$735,075.00
Embroidery..................tons...	4	16,119.70	3⅝	17,955.79	3¾	22,952.83
Vegetables..................do......	600	14,950.90	841	23,731.51	1,288	17,113.18
Fruit..........................do......	570	12,652.26	997	29,677.45	927	20,673.15
Wicker and cabinet work ....tons...	63	4,853.91	34	7,524.15	....	....
Wickerwork...............do......	....	....	....	....	30	5,945.99
Cabinetwork..............do......	....	....	....	....	4½	1,540.62
Other articles..........................	....	36,554.22	23	26,672.99	....	23,728.51
Total..........................	....	1,021,367.69	....	912,803.69	....	837,029.28

Articles.	1890.		1891.	
	Quantity.	Value.	Quantity.	Value.
Wine..pipes...	5,592	$749,649.14	6,346	$848,033.98
Embroidery...tons...	3¾	23,006.14	1¼	5,449.53
Vegetables...do......	726	11,096.17	570	13,738.27
Fruit..do......	1,900	26,892.01	956	21,423.13
Wickerwork...do......	39	4,475.53	35	3,389.52
Cabinetwork..do......	6	1,641.19	11	1,732.94
Other articles..	....	16,324.24	....	22,201.81
Total..	....	833,084.42	....	915,989.18

Large quantities of embroidery are sold direct from the manufacturers to visitors here and to passengers on passing steamers which are not accounted for to the custom-house. The same is true of fine cabinetwork, and more particularly inlaid work, in which Madeira excels. Many thousands of dollers' worth are sold in this manner.

The returns show that about 11 per cent ($13,565.55) of the whole export is to the United States.

Table showing the exports of Madeira by countries and duties paid.

To—	Value.					
	1887.	1888.	1889.	1890.	1891.	Total.
Portuguese possessions in Africa	$9,472.84	$16,131.85	$20,129.04	$20,917.98	$19,812.67	$86,463.38
Germany	36,188.72	69,121.75	95,590.04	99,320.96	153,748.37	453,969.84
Buenos Ayres	......	1,636.20	1,204.74	577.80	2.16	3,420.90
Brazil	24,951.63	39,878.35	41,211.93	37,773.09	38,460.59	182,275.59
Chile	......	722.52	......	......	108.00	830.52
Kongo	43.20	......	......	......	648.00	691.20
Denmark	......	1,780.38	4,051.62	2,432.16	4,055.40	12,319.56
United States	2,644.92	1,222.56	5,311.98	3,792.09	594.00	13,565.55
France	13,581.00	118,956.60	135,459.75	144,533.13	280,965.67	693,496.15
Spain	5,696.02	2,564.54	2,998.08	7,057.74	5,291.67	23,608.05
Holland	......	694.44	1,351.08	65.88	1,566.00	3,677.40
Honolulu	......	......	......	......	1,080.00	1,080.00
England	226,447.21	496,383.12	361,227.38	376,778.73	329,393.27	1,790,229.71
Italy	......	......	......	......	105.84	105.84
Lisbon and Azores	128,982.88	69,242.36	45,694.90	23,200.56	33,200.06	300,320.76
Morocco	9.72	564.19	611.92	171.91	143.96	1,501.70
Norway	......	2,517.48	812.70	4,009.50	2,700.00	10,039.68
Russia	82,105.38	34,077.20	80,107.92	104,903.67	32,349.02	333,543.29
Switzerland	......	......	3,537.00	......	140.40	3,677.40
Stores:						
For foreign vessels	5,618.80	11,925.14	20,228.50	8,138.23	5,266.00	51,176.67
For Portuguese vessels	1,915.92	2,667.38	1,791.28	1,883.38	924.37	9,282.33
Total	536,658.24	870,086.06	821,319.86	835,556.81	920,555.45	5,755,175.52

To—	Duties.					
	1887.	1888.	1889.	1890.	1891.	Total.
Portuguese possessions in Africa	$122.06	$195.04	$250.83	$285.19	$248.75	$1,101.87
Germany	1,317.05	988.72	1,281.18	1,429.30	2,271.18	7,287.43
Buenos Ayres	......	12.16	9.82	4.78	.27	27.03
Brazil	663.85	511.46	449.74	374.84	432.04	2,431.93
Chile	......	13.56	......	......	1.57	15.13
Kongo	33	......	......	......	2.65	2.98
Denmark	......	27.37	53.15	33.06	67.74	181.32
United States	47.36	14.82	38.40	50.64	5.26	156.48
France	487.75	2,023.66	2,189.92	2,219.68	5,069.61	11,990.62
Spain	113.50	40.64	41.40	99.73	72.45	367.72
Holland	......	8.13	25.77	1.96	30.92	66.78
Honolulu	......	......	......	......	11.05	11.05
England	7,430.08	7,888.13	5,527.69	5,796.81	4,871.76	31,514.47
Italy	......	......	......	......	1.08	1.08
Lisbon and Azores	1,835.85	......	......	......	......	1,835.85
Morocco	.16	8.47	7.79	4.10	2.00	22.52
Norway	......	34.02	13.68	50.51	44.20	142.41
Russia	3,536.19	1,054.15	1,399.26	1,660.22	526.88	8,176.70
Switzerland	......	......	60.78	......	3.95	64.73
Stores:						
For foreign vessels	126.18	125.14	196.10	85.45	54.28	587.15
For Portuguese vessels	12.95	23.07	15.45	15.15	8.04	74.66
Total	15,693.31	12,968.54	11,560.96	12,111.42	13,725.68	66,059.91

The total exports to the United States from this district for the period named therein is actually $116,384.26, instead of $13,565.55, as given in the foregoing table. I called the attention of the collector of customs to it, but he could give no satisfactory reply.

REVENUE.

The amount of revenue for the five years ended June 30, 1892, which closes the fiscal year, was as follows:

1887–'88	$690,392.81
1888–'89	933,412.04
1889'–90	1,016,358.43
1890–'91	949,320.22
1891–'92	1,252,644.89
Total	4,842,128.39

From this should be deducted the total rebate, or drawback, on coal for the period above named, which was $116,007.58, leaving a net balance of $4,726,120.81.

EMIGRATION.

The following table shows the number of emigrants from this district from 1887 to 1891, inclusive, and the different countries to which they emigrated:

Year.	Destination.				
	Europe.	Africa.	Oceanica.	America.	Total.
1887	2	9	292	1,043	1,346
1888	13	81	1	3,338	3,433
1889	5	627	....	1,219	1,851
1890	....	706	8	2,017	2,731
1891	....	528	....	2,351	2,879
Total	20	1,951	301	9,968	12,240

The population of this island is too dense. It will be seen that the greater portion of emigration is to Brazil, though it is increasing to continental Africa.

IRRIGATION.

The island of Madeira has an area of only 758 square kilometers, or about 508 square miles, of which about two-thirds (say, 492 square kilometers) are arable lands. Only about 200 square kilometers of this amount are under cultivation, leaving nearly 300 square kilometers, or nearly three-fifths, of the arable lands not yet under cultivation for the want of water.

The wealth of Madeira lies in her fine *levada* system of irrigation; and when those *levadas* are completed, which will be in the near future, it will be marvelous what an immense amount of the productions of the tropic, subtropic, and temperate zones this little island will be capable of producing—indeed, it is marvelous now.

The total acreage which can be brought under cultivation, not including very small *fazendas*, is 246,480 acres. Madeira will then be the great winter market garden of the eastern Atlantic, and a good base of supply for the London and other English markets, as well as other cities of northern Europe, and an all-the-year-round market for passing steamers.

I am indebted to Mr. von Haffe, the commissioner of public works, for the following information in regard to the *levada* system of the island and other public works completed, in course of construction, and about to be begun. The length of the *levadas* completed by the General Government before the commencement of the present *levada* Furado was 110 miles, at a cost of 500 contos of reis (a conto of reis is equal to $1,080). Some of those *levadas* had to be tunneled through the mountains at great cost. There were also 130 miles by private corporations, which cost 200 contos of reis. The *levada* Furado, above referred to, which is in course of construction, when completed will irrigate large tracts of land and will be 50 miles in length. There are large tracts of land lying just east of the city barren for want of water. When the whole *levada* system is completed, it will be 340 miles in length. An appropriation of 40 contos of reis will be annually appropriated for this purpose till completed, which will require about eight years.

BREAKWATER AND HARBOR.

The breakwater from the Pontinha to the Loo Rock, which was completed some three or four years ago at a cost of 450 contos of reis, was so badly injured by a storm last winter that it must be replaced. The wall was built too high and too narrow; and the wall between the Pontinha and the Loo Rock, instead of being a straight line, should have been curved, so that the force of the waves striking in the center between the two rocks would be broken. It should also have had an apron to break the force of the surf. I understand it did not have a proper foundation. Its reconstruction will be commenced next spring, and will cost 140 contos of reis.

The building of a breakwater here is very difficult, owing to the great depth of the water. In addition to the building of the wall itself, immense blocks of concrete, weighing from 28 to 37 tons, must be thrown into the water on the outer side to break the force of the waves. This breakwater is of no service to large vessels; it is beneficial to small craft and in the landing of passengers in stormy weather. The further extension of this breakwater is simply impossible. Indeed, if the money were lying idle with which to construct it, I think it would be folly to undertake it.

This harbor is not as badly exposed as is generally stated. For instance, it is not a bad harbor from the southwest; it is first class from the west, northwest, north, northeast, east, and southeast; and it is only a direct wind from the south and a point between south and southwest which renders this harbor dangerous. During nine months of the year the prevailing wind is northeast. For nearly two years that I have been here no vessel of any kind has been obliged to leave this harbor through stress of weather, and there have been what the people here called lively gales. In one of these gales last winter a mail steamer from the Cape of Good Hope for England came here before daylight, but went down to Machico and returned after daylight and got her coal, mail, etc. None of the vessels in the harbor were driven from their moorings. This was the storm which washed the basement from the breakwater and broke it. The value of vessels lost on the coast of Great Britain in one year is greater than those that have ever been lost here.

A new dock, or quay, 75 meters in length extends into the sea for the reception of passengers and light freight. It is a fine esplanade—a fine walk to take in order to enjoy the seabreeze—and cost 90 contos of reis. This will stand the force of the waves. It has a good foundation, which is above the water at high tide. It is also protected by the breakwater, which is at some distance, and has pipes laid in it in which water is carried for the use of passing vessels. This makes the supply of water very convenient for vessels; it is, I believe, supplied at half a cent per gallon. While the General Government owns the dock, the water supply carried to it is owned by the municipality.

LIGHTING THE CITY OF FUNCHAL.

The city at the present time is lighted with kerosene, which comes from the United States. A change is about to be made to either gas or electric light. The latter certainly would be cheaper for a city like Funchal, where the cost of laying pipes will be an enormous expense, as they must be laid through rock for the most part.

WATER SUPPLY OF FUNCHAL.

The water of Funchal is of the very best quality, although different reports have been written against it. Some years ago English writers wrote against the quality of the water. This, of course, was intended to injure the island as a health resort. William Hinton, esq., who has been in business here for more than half a century, instructed his son to secure seven samples of water from different fountains and have them bottled and sent to London to be analyzed, with the following result:

LABORATORY OF ANALYTICAL CHEMISTRY, PUTNEY,
London, S. W., November 29, 1887.

Messrs. WILLIAM HINTON & SON,
Madeira.

DEAR SIRS: I am now able to report on the quality of the seven samples of spring water forwarded to me per steamship *Spartan* and marked in duplicate A, B, C, D, E, F, and G. A careful examination of all these samples turns out, I am glad to say, very satisfactory as regards their quality for domestic uses. After showing the results of the analysis, I will make a few general observations upon them, which will better enable you to judge of their nature. The results are given in grains per imperial gallon (70,000 grains).

A.—Clear; well aërated; very slight saline taste; no odor; the total residue on evaporation was 8.75 grains; mineral matter, 7 grains; organic matter, 1.75 grains. The mineral matter consists of the usual ingredients found in spring waters, namely, silicates, chlorides, and sulphates of lime, magnesia, soda, potash, and mere traces of iron. The figure for organic matter includes combined water in dry residue obtained on evaporation; the organic matter is of a peaty nature and harmless.

B.—Clear; well aërated; taste very slight; like A, colorless. The total residue on evaporation was 8 grains; mineral matter, 6 grains; organic matter, 2 grains. The mineral is entirely similar to that of A, and the organic matter is likewise of a harmless nature.

C.—Clear; no taste or scarcely any; no odor; well aërated. The total residue was 5 grains; mineral matter, 3.5 grains; organic matter, 1.5 grains. Same remarks as regards organic and mineral matters as per last sample.

D.—Clear; no taste; no odor; well aërated. The total residue was 5.1 grains; mineral matter, 3.8 grains; organic matter, 1.3 grains. Same remarks.

E.—Clear; tasteless; odorless; well aërated. The total residue was 2.8 grains; mineral matter, 2.31 grains; organic matter, 0.49 grain. The mineral matter was of the same nature as indicated above; organic matter of a harmless nature.

F.—Clear; no taste; no odor; well aërated. The total residue was 4 grains; mineral matter, 2.7 grains; organic matter, 1.3 grains. Same remarks as last sample.

G.—Clear; tasteless; odorless; well aërated. The total residue was 3 grains; mineral matter, 2.6 grains; organic matter, 0.4 grain.

GENERAL OBSERVATIONS.

It will be seen by these results that all these waters are of a very superior quality, and that some of them are extremely pure. They are quite fit for drinking and all domestic purposes; none of them present the slightest traces of sewerage contamination. E and G compare favorably with the Loch Katrine water, which supplies the town of Glasgow and is celebrated for its purity. Besides the results given in the above figures, these waters were carefully tested for lead, iodine, iron, arsenic, etc., but without result. Nevertheless, it is well to observe that these waters (like all very pure waters) will attack lead pipes and cisterns until the latter are thoroughly coated by crust or deposit, so that the water no longer comes into contact with the metal. With these waters the coating may occur in a few years. I would advise for their storage the use of slate or limestone cisterns in preference to lead. Perhaps, also, the water may issue red at first from new iron pipes; but this effect will disappear as soon as the pipes get coated, which will occur in a comparatively short time.

From a medical point of view these waters would prove excellent for rheumatic and gouty patients and for persons suffering from calculous. They are superior in this respect to the waters of the Bixton establishment in Derbyshire, which contain much more mineral matter. They might be drunk at about the rate of 3 pints daily in moderate quantities at a time and combined with as much exercise in the open air as can be taken without fatigue or excitement.

From an industrial point of view, they will prove to be "soft waters" for washing and laundry purposes, excellent for brewing, and will deposit in steam boilers much less than our ordinary river water in London. In the pharmacy they may be perfectly well used in the preparation of all kinds of medicaments in place of distilled water.

In the course of thirty years of laboratory practice, during which I have examined waters used for drinking, etc., from a great number of localities, I have only twice met with waters so pure as these.

I am, etc.,

T. L. PHIPSON, M. B., Ph. D., F. G. S.,
Professor of Analytical Chemistry, etc.

Thus it will be seen that great injustice has been done to Funchal and great inconvenience caused to the shipping of all nations.

Another writer on the island quotes from another author and gives the island only 280 square miles, when he certainly must have known that he was writing a falsehood at the time.

The municipality is going to put in a new system of waterworks during the coming season.

POPULATION OF FUNCHAL.

Funchal has a population of about 40,000 inhabitants. The resident British population is between 200 and 210. On April 4, 1881, there were 438 British people here, including visitors, and on April 4, 1891, there were 371 persons. This is the date upon which the census of Great Britain and Ireland is taken, and all British subjects are enumerated where they reside at the time. As many of these are visitors and leave when summer comes, the resident population, then, at the present time, is as above stated.

The German colony is very small, not nearly as large as in years gone by. It consists at the present time of about 20 persons.

SCHOOLS AND ACADEMIES.

The schools of Madeira are free.. They are open during the year, except the month of September and the vacations at Christmas and Easter. By the laws of Portugal all public schools are free, and, so far as the written law is concerned, education is compulsory for all children in the realm.

The average wages to teachers, who are all employed by the year, is: To males, $19.50 per month, or $234 per annum; female teachers, $12.90 per month, or $154.80 per annum.

The schools in this *conselho*, or municipality, which is divided into nine parishes, may be classified thus:

Each parish has two public day schools, one for each sex, making in all eighteen public primary schools in this city, which have an average total attendance of 445 males and 441 females. There are thirty-three select schools for females and six for males, making a total of fifteen for males. The thirty-three select female schools have an average daily attendance of 882, making a total of 1,323 females in the primary schools. In the six select schools for boys the average daily attendance is 348, making a total of 793 males in primary schools. Thus the total of both sexes is 2,116.

There is a seminary for young ladies under the auspices of lay sisters of St. Francis. This school receives no Government aid.

There are several night schools for boys who can not attend day schools. I have not learned the number in attendance.

There is a school of design whose sessions are a day course for females. There are night sessions for males. It has a large attendance.

The Lyceum for Young Men is the college or high school of Madeira. It has a membership of nearly 200, 8 professors, and the Portuguese, English, and French languages and the higher mathematics are taught. It is a Government school and may be called a preparatory school to enter the university at Coimbra. Six years' attendance at this academy entitles the student to a diploma which admits him to the university just referred to. This academy has a cabinet of physics.

The Theological Seminary has about 50 students. It is principally supported by the General Government, except so far as the personal expenses of the students are concerned, which are borne by themselves. Among others, the English language is taught. It has a museum of natural history, a cabinet of physics, and a scientific department.

The City Hospital and Medico-Surgical School are in one building, commonly called Santa Casa Misericordia, founded in 1685. This is not a Government institute, hence has no Government aid. Its chief source of revenue comes from a fund which has been and is being received from liberal donations from various persons at different times. It receives and treats more than 600 persons annually. Foreigners are received at 500 reis per day; they receive food and attendance, including medical attendance. The medicine they pay for as extras. This school has a faculty of four chairs and a class of students.

PHYSICIANS.

The physicians of Funchal, both native and foreign, are, I have no hesitancy in saying, as active in their profession and as respectable a class of gentlemen as I have ever met. Any person coming to Madeira for treatment can rest assured that they will meet in the medical staff of this city gentlemen in every respect worthy of their confidence.

HOME FOR ORPHAN GIRLS.

This is a home for destitute orphan girls out of employment who have no homes, where they are received and taken care of till situations can be found for them as domestic servants. I am not prepared to state whence the revenue is derived which supports this home. It is here, however, and doing its duty well.

SEAMEN'S HOSPITAL.

The Seamen's Hospital of this city was founded only a few years ago by British residents. Dr. Goldschmidt was among its principal originators. The hospital, as its name indicates, is for the reception of sick and injured seamen, no matter whence they come. They are treated in the kindest and most humane manner and at very reasonable rates. Besides being a seamen's hospital, it occasionally receives a consul; indeed, it is due to the almost superhuman efforts of this institute, its kind and careful matron and assistants and the very able physicians in attendance, that I owe my life, having entered there when it hung upon a thread, the result of typhoid.

HOSPICIO DA PRINCERA.

This most beautiful home was erected in memory of the young Princess D. Maria Amelia, duchess of Bragança and daughter of Dom Pedro IV of Portugal and first Emperor of Brazil. She was suffering with pulmonary troubles, and was brought here by her mother, the then Dowager Empress of Brazil, on August 28, 1852, with a squadron of three war vessels from Lisbon, where they were then residing, one of which was a Brazilian man-of-war. There were anchored in this harbor at the time two American war vessels, the *Dale* and *Bainbridge*. After a lingering illness she died on February 4, 1853, at the age of 21 years. She had been engaged in marriage to the ill-fated Emperor Maximilian. As an appreciation of the kindness and attention received, the Empress founded the above hospital for the treatment of pulmonary diseases for Portuguese and Brazilians.

The construction of this building was commenced February 4, 1856, completed in 1859, and opened for the reception of patients in 1862; however, on July 10, 1853, a temporary hospital was opened for the reception of patients. The building and grounds cost about $200,000. It has accommodations for twenty-four patients—twelve males and twelve females. The plan of the garden and all the walks were made by Maximilian. I have twenty-eight varieties of wood from these gardens and one hundred and fifty from the island for Columbian Exposition exhibits.

This institute is under the administration of a board of managers at Lisbon, who make an annual report to the King of Sweden, who furnishes the money for the maintenance of the institute. It is derived from the income of money invested, I think, in French securities by his mother, the late Queen of Sweden, who was a sister of the Empress above referred to. The Swedish flag is the banner of this institute, and is thrown to the breeze on all festive occasions, as well as when the Swedish men-of-war are in port. Sisters of St. Vincent de Paul are in charge of this hospital. They are a French community.

In connection with this is an orphanage and schools, where between 300 and 400 poor little girls for the most part get the rudiments of a good practical education to prepare them for active life. Besides the national language here, they are also taught French, and are instructed in fine and fancy needlework and crocheting, which is liberally patronized by many English ladies who visit here and other travelers. It has no Government or any other income except the income arising from the sale of fancy work and charitable contributions. A visit to Madeira would not be complete unless you visited the Hospicio, as it is commonly called, and its fine gardens.

HOME FOR DISTRESSED SEAMEN.

The Dowager Queen D. Maria Pia, of Portugal, has within the past year founded a home here, with headquarters at Lisbon, for the benefit of distressed seamen and their families, which is a much-needed and humane enterprise and will be of incalculable service to that unfortunate class of people. It is safe to say that there is not another woman in Europe who is doing as much for poor and needy people, taking into account the amount of means which she possesses.

ASSYLO DA MENDICADE.

This establishment is a poorhouse for the old and infirm who have no means in their old age and who have to depend on the charity of a generous and sympathetic public.

LIBRARIES AND READING ROOMS.

The public libraries and reading rooms of Funchal consist of the following:

Portuguese Municipal Library, which is open to the public. It contains about nine thousand volumes, among which are English, French, and German. In this library are some very old works, among others the writings of Fructuoso on this archipelago in 1590.

English reading room and club rooms. Admission is by ballot. The admission fee for one month is $3; three months, $7; six months, $12; one year, $15. This is a very good library, and contains about five thousand volumes.

There is a small German library, principally for the accommodation of visitors. It contains some twelve hundred volumes, and is always open to its friends.

COMMERCIAL ROOMS.

The Commercial Association of this city is an association of commercial men, both native and foreign, who meet at their rooms for commercial and social relations. The principal English journals and periodicals are taken at the rooms, as well as those of continental Europe. Other parties not connected with commerce are also admitted. The admittance fee is $1 per month or $6 per annum.

PLACES OF AMUSEMENT.

Funchal has two theaters. The old one, Theatro Cannivial, is a snug little theater with a seating capacity for about 400 persons. The new theater, Theatro D. Maria Pia, is a most magnificent building. It was completed some five or six years ago at a cost of 14 contos of reis, and has a seating capacity, I believe, for about 800 persons. It is almost too costly a building for a city of the size of Funchal.

The public garden in front of it, across the street, is a fine subtropical garden. Perhaps one of its finest features is the cleanly manner in which it is kept. The same is true of the small gardens and *praças*. I have no hesitancy in saying that there is not a city in either hemisphere of the size of Funchal which has as good a theater and as fine public gardens. Praça da Constituição, near the entrance to the city, and Praça Academica, in the east part of the city, are good promenades, with lines of shade trees, and, like the public gardens, are kept in neat and trim order.

The Club Funchalense is noted for its hospitable entertainments, soirées, and other amusements during the winter months, the proceeds of which go to charitable institutions. Besides this, there are other club rooms for musical and literary entertainments.

NEWSPAPERS.

Funchal has two daily papers, a semiweekly, and two weeklies.

FISH MARKET.

The fish market, which was built in 1840, is a rather unique structure—an elevated terrace inclosed with an iron railing. This square is ascended by stone stairs from two sides, and is called Praça de São Pedro. It has a line of shade trees in the center, a fountain of water, and water carried through it in aqueducts. When the weather is calm and pleasant it is a sight worth seeing to go there in the morning from 7 till 9 o'clock. The price of fish varies with the state of the weather, the season of the year, and the time of day you purchase; for instance, at from 7 to 9 in the morning fish are worth more than later in the day.

MEAT MARKET.

The *talho da camara,* or butcher shop, of the municipality is annexed to the above, and was built in 1851. In the basement all animals must be inspected before slaughtering. Like the fish market, it has a heavy flow of water, which carries all offal to the sea in an underground channel.

FRUIT AND VEGETABLE MARKETS.

The fruit and vegetable markets are separate buildings and are close to the meat market. They were constructed in 1840. They are very good buildings and are well laid out for the purpose for which they are used. They also have a fountain in the center.

It is interesting to a person from a northern climate to go into these markets in midwinter, with snow on the mountain tops, and find the fruits and vegetables of the temperate, subtropic, and tropic zones, including the pineapple, which grows in hothouses at an elevation of 800 feet.

KEROSENE STOREHOUSE.

Close to the above buildings and near the seashore is a *casa amerella* (yellow house), in which is stored all the kerosene which is consumed in this city. It is dealt out in small quantities. The building has iron doors and window shutters, and looks as though it ought to be fireproof.

MANUFACTURES.

There are no manufacturing establishments in this city other than hand work, except a small foundry, which turns out such work as a city or island like this might require. How cabinetmakers, shoemakers, and tinsmiths can find a market for their products is a mystery to me; still, they are always busy. Workers in inlaid wood excel in their craft; their productions find a ready market wherever known.

The Funchal steam flour mills are owned and operated by Messrs. Antonio Giorgi & Co. Their average capacity is about 100 barrels per day, which is the average daily consumption of this city. This mill also grinds corn. There are some two or three small mills in this city whose motive power is water. They make some flour on the old system, but their principal business is grinding corn. There are many little water mills scattered in different parts of the island. About 25 per cent of the wheat consumed on the island is produced here.

WINDMILLS OF PORTO SANTO.

The mill power of Porto Santo ought to take the first premium at the Columbian Exposition. The Porto Santo miller has a patent of his own. He constructs a round tower of rock, which is ascended by means of a stairway. On the top he builds his little grist mill. In the center of this tower stands a high post, from the top of which arms reach out, which are held together by means of rope, and between the arms he spreads his canvas, so that when he gets a little gale of wind he is ready for business. In this respect he is ahead of the Madeira farmer. As I understand, there are none of these on the island. He had his patent before Columbus left Porto Santo, and he feels prouder of his mill to-day than the American miller of his latest improvements.

A landed proprietor at Porto Santo has gone to considerable expense with a well, building a reservoir, aqueducts, etc., to irrigate some lands. To pump this water he bought a "windmill" from an English firm, and, without any exception, it is the greatest sham I have ever seen in my travels for a power called a windmill. I told this good man that if he had one of our American 12-foot windmills on a 60-foot tower, which he could have constructed at the very highest price for $150, he could wisely trade off his "windmill" for an old fiddle.

THE NEEDS OF PORTO SANTO.

When at Porto Santo last June, I looked the country over and found that one of the great needs of the time-worn lands is clover. The lands are old, sandy, and worn-out, and I endeavored to show the men that their only hope to receive any further returns from their lands lies in the fact that every acre sown in grain, wheat, and barley must at the same time be sown with clover seed. The soil is light and sandy, and I have seen nowhere lands as well adapted to the growth of heavy clover. This, of course, could not be expected the first year, nor, indeed, even the second or third years; but I feel convinced that within five years from now, by adopting that course, 5 bushels of grain can be raised where 1 can not be raised now. Clover sown with the grain in October, getting heavy rains through the winter, would attain such a growth in April, when the rainy season is over, that it would hold the moisture in the ground and could support five times the number of sheep and cattle they now raise. I told the landed proprietors at Porto Santo that if they would buy the clover seed I would go over there for a week or ten days and instruct them in the mode of sowing it and give them the pattern for a machine with which to sow it. They agreed to buy a few sacks of clover for trial, but they failed to do so, preferring to move in the old groove.

Porto Santo is Portugal's oldest possession in this archipelago, and it is badly neglected. It has no water for irrigating purposes, by means of which fruits and vegetables could be grown, which are so essential to the public health. Mortality is heavy in Porto Santo among infants and young children, for the reason that their mothers do not have proper nourishment; the food consists chiefly of barley bread, wine, fish, some corn meal, and a little milk and butter. If the General Government would put in six good wells in the village with our American system of drilling and with American windmills, the little village could be made very productive in all kinds of fruits and vegetables. Water can be got very cheaply in the village—as it is near the seashore—in amounts ample for the irrigation of all the lands surrounding or in the vicinity of the village and as much more at different points in the most favorable localities.

An expenditure of $20,000 would more than quadruple the value of this little "kingdom" within five years. The Government could easily get the interest on the capital from the landed proprietors by a tax on the water. Let the Portuguese Government once appropriate $20,000 for twenty wells and windmills at Porto Santo, and it will only be a short time until an American firm would send water flowing through the fields and valleys.

Besides farming, quarrying limestone for use in this city, together with fishing, furnish the chief pursuits of the inhabitants.

TANNERIES.

Messrs. Antonio Giorgi & Co. own a tannery where they tan sole leather and goatskins. I am informed by Mr. Zino, the manager of the firm, that they are just receiving a consignment of hides from the Argentine Republic; if this proves satisfactory, they will increase the capacity of the tannery. They use cork-wood bark, and import it from Spain and Algiers.

HOTELS.

Funchal has a good system of hotels, some of which have been and are being constructed on the most modern plans. The kindest attention is paid to guests; good treatment and moderate prices are the rule. As Madeira is growing as a winter resort and health-seeking center for northern Europe, its hotel accommodations will necessarily have to be extended. During the past two years fine improvements have been made in hotel arrangements.

BANKING.

Banking business is carried on here by several parties, including the Banco de Portugal, which is a branch of the National Bank of Portugal. The rate of exchange on bills on London and continental countries is from 1¼ to 1½ per cent.

ROADS AND RAILWAYS.

The Caminho Novo (New Road) was constructed some forty years ago from the Ribeiro Secco, the then western terminus of the city, along the seashore to Camara do Lobos, a distance of some 4 or 5 miles. It is a paved road, and has shade trees on either side for a considerable distance. This is a fine seaside drive for either summer or winter.

It is not true, as is generally understood in the West, that carriages can not be used in Funchal. One can take a carriage at the extreme eastern outskirts of this city, which is at the beautiful Quinta Rochada, 2½ miles east of this office, and drive to Camara do Lobos, a distance of some 8 or 9 miles, return and drive with a carriage through almost every street in this city, then go for a drive along the *levada* of Sta Luzia, which overlooks the city at an elevation of some 500 feet, and return here by way of Avenida d'Ornellas; or, if one is not satisfied with the drive, a messenger can be called and sent for one of the *carros dos bois* (ox carts) at 40 cents an hour and scale the hills that are too steep for the carriage. One point which I almost omitted to mention and which deserves notice is that when the Dowager Queen Adelaide, of England, was here for health in 1847 she made a liberal donation toward the construction of this new road.

The Caminho de Ferro do Monte (Mountain Railway) is a new enterprise. It is a short railway to Mount Church, which has an elevation of nearly 2,000 feet. The railway is 3,000 meters in length, has an average gradient of 20.8 per cent, and cost, including rolling stock, $112,500. It will be ready for service next spring. Had it not been for the quarantine against German ports during the past autumn, it would be nearly ready for use now. The rolling stock is coming from Germany. The motive power will be steam. The Riggenbach system of locomotive is to be employed. When this railroad is completed one can go to the mountain every day, enjoy the fresh mountain air and scenery, and return by rail or slide down the mountain in the famous mountain sled (*carro do monte*). The descent (2½ or 2¾ miles) will take from five to twelve minutes.

AGRICULTURE, WAGES, ETC.

I have previously given the principal agricultural productions of this district. A few remarks on minor industries, wages, etc., may not be out of place. The Madeira farms, generally speaking, are divided into small parcels, and the land is owned by landlords, if we may so call them (they were formerly called "morgados"), who take, I understand, half the produce for the rent.

The Madeira farmers are very economical and industrious on their little farms. Nearly every farmer of any consequence raises a little flax and some sheep, and for the most part makes a considerable portion of his own clothing. I have seen some linen worn here by men as pantaloons that I could hardly expect to see manufactured in a country place. On account of this flax culture and linen manufacture, there is a very heavy duty on linen goods. They weave a mixture of linen and woolen goods, quite coarse. I see considerable quantities of a kind of coarse carpet of linen warp and filled in with wool sold in the market. Then, every farmer is generally a tanner and shoe-maker. He tans his goat and sheep skins, and makes a cheap kind of boot which he sells to some extent in the market here. The Madeira farmer may, in fact, be fairly called a jack-of-all-trades, and it is interesting to see how many knickknacks he brings to town in the winter to sell.

The average wages here are very low—from 33 to 35 cents for a day of twelve hours, without board. I do not believe I ever met more industrious, hardworking, or quieter men, with greater power of endurance, than the laboring people here.

A Portuguese, if he has advantages in a foreign country, usually does well. Many have left here as poor boys and returned wealthy, buying up properties that have been lost and squandered by the descendants of the landed proprietors. Many have thus returned and have become the owners of the old estates and properties, and they will continue to come and buy up the properties that are being lost by descendants of former proprietors.

Looking at the wages paid to agricultural laborers in European countries, where the winters are cold and the cost of living higher, I can not see that there is any great difference.

SAVINGS BANKS.

I notice in France that the question of organizing juvenile savings banks in connection with the schools is being agitated, in order to teach the children habits of saving and economy. Each child is to be provided, as I understand it, with a little book, into which the teacher will enter the smallest amount received, which, I think, is 2 cents, drop the money into the bank, and, when he has deposited 20 cents, give him a check for the amount, and so in that manner children will acquire a desire and a taste for saving.

To illustrate the benefits accruing from a savings bank, here is an instance which has come directly under my observation, inasmuch as the collection was done through this office. Its great importance and the lesson which it teaches entitle it to a notice in this report. In October, 1865, one John F. da Silva, a native of and now a resident of this island, enlisted on the United States flagship *Hartford* as commodore's steward for three years, unless sooner discharged. Having been discharged in August, 1868, he deposited his earnings and savings in the Brooklyn (N. Y.) Savings Bank. His bank book, which he brought to this office last July, supposing it to be dead property, showed the following: On August 11, 1868, he deposited $750. On November 28 of the same year he drew $150; January 8, 1869, $200; January 29, 1869, $200; April 23, 1870, $50; total amount drawn from the bank, $600, leaving a balance of the principal on April 23, 1870, of $150 standing to his credit on the books of the bank. He came home here, expecting at the time to return to New York, but failed to do so. He had long since supposed that his account was a dead issue. I took charge of his bank book in July and wrote the bank the particulars. Under date of August 9, they sent him a blank order for $491.48 and requested him to fill it and forward it, together with the bank book, which he did. The bank promptly sent him the amount above mentioned.

TO EXPORTERS.

A word to manufacturers and shippers:

Better advice can not be given to manufacturers and shippers than to quote the words of the British consul here in his report to his department on manufacturers and shippers. He strikes the nail on the head. Speaking on the outlook of British trade for 1891, he says:

> I would say a word on the decline of British manufactured goods in Madeira. During the past year I have been applied to on very many occasions by English firms of all kinds for the names of the principal buyers of goods, whatever they may be, and for the names of trustworthy agents to sell on commission; but in most instances the result has been nil, as the supply is, as a rule, already in the hands of foreigners. The foreigners, as in previous reports I have mentioned, send travelers with samples of the goods supplied by the house they represent and offer advantageous terms for payment. England sends few or no travelers, but applies to the consul, with the result above stated. It can not therefore be wondered at that the small trade there is passes into the hands of the foreigners.

This is precisely the condition of American trade here. "Writing to the consul" has no weight in foreign countries; it is, in fact, wasting postage and stationery so far as the results are directly concerned. Men must be on the ground with their samples, prices, and terms; it inspires confidence. German and French dealers do not write; they send very sharp, shrewd traveling men with their samples. The same is true of men who come here from Portugal, and they get the trade.

MADEIRA AS A HEALTH RESORT.

In regard to Madeira as a health resort, an English doctor said:

> That the climate of Madeira can prolong life under very unfavorable circumstances, the case of Dr. Heineken affords sufficient proof. This gentleman repaired to Madeira after his case has been pronounced hopeless by able physicians at home. Nevertheless he lived in comparative comfort for nine years, and might have continued to live some years more had he not imprudently made a voyage to Porto Santo. On his return he was overtaken by a storm. The exposure to the weather brought on an illness, and he died in a few days after landing at Funchal. Dr. Benton, who, at his request, performed the autopsy, was astonished that he could have sustained life with so small a portion of the respiratory organs left.

Another author says:

> In addition to those suffering from chest complaints, there are other classes of invalids who are much benefited by a sojourn in Madeira, such as those laboring under morbid conditions of the blood and the diseases arising from this state, rheumatism, scrofula, kidney affections, and various chronic diseases, imperfect recoveries after fevers, and those who can not resist cold and consequently suffer from internal congestions and imperfect actions of the skin. Persons suffering from affections of the brain and nervous system or a tendency to apoplexy, asthma, chronic diarrhea, and dysentery should not be sent to Madeira.

Sir James Clarke's book on climate says:

> When we take into consideration the mildness of the winter and the coolness of the summer, together with the remarkable equability of the temperature during the day and night, as well as throughout the year, we may safely conclude that the climate of Madeira is the finest in the northern hemisphere. It is almost exempt from keen cold winds and enjoys a general steadiness of weather to which the continental climates are strangers.

HOW TO GET TO MADEIRA.

There are several routes from New York to Madeira. The first and most direct route, as well as the cheapest, is via the Azores. The rate for first cabin is $70. If a steamer is taken so as to reach the Azores on the first of each month, one can come here direct on the fine steamer *Funchal*, which runs to Lisbon. Failure to arrive in the Azores at that time would necessitate waiting till the beginning of the next month. If one of the same company's steamers is taken at New York so as to reach Lisbon on the 17th of the month, the *Funchal* can be taken the next day for this city. The distance from Lisbon is 530 miles and the time from forty-four to forty-eight hours. Besides the *Funchal*, several steamers come from Lisbon during the month en route to Africa and South America.

Another route is via Liverpool, the distance from there being 1,536 miles and the time from six to eight days. The fare is $50 for first cabin.

Another route is from New York direct to Southampton by the German steamers. The Union Steamship Company and Castle line have each a line of steamers from there to the Cape of Good Hope. They alternately dispatch a steamer every Saturday evening, calling here. The fare is $75 for first cabin. These are fine steamers and equipped with the most modern improvements.

The total distance from here to New York via Southampton per German steamers is 4,450 miles. From New York direct, not calling at the Azores, the distance is about 2,675 miles. Some vessels arriving show by their logs more than 3,000 miles—one 3,300 miles. That is not true; though it is quite true that, owing to the current in the Gulf Stream, a vessel will be compelled to make more than the actual number of miles. This is much nearer New York on a direct line than Queenstown.

The quickest time on record from here to England was made a few days ago by the *Scot*, a fine new steamer of the Union line, to Plymouth, the distance being 1,264 miles and the trip having been made in two days, twenty-three hours, and fifty minutes.

BIRDS.

Besides the stragglers and visitors that come, the following are the native and breeding birds of Madeira: Kestrel, buzzard, barn owl, blackbird, redbreast, blackcap, speckled warbler, wren, gray wagtail, meadow pipit, green canary, goldfinch, king sparrow, buff-breasted chaffinch, greater redpoll or linnet, lesser swift, common swift, long-toed wood pigeon, ringdove, rock pigeon, red-legged partridge, quail, woodcock, tern, herring gull, cinereous shearwater, Manx shearwater, dusky petrel, Leach's petrel, Bulwer's petrel.

The following is a list of the stragglers and visitors which do not breed on the island: Egyptian vulture, sparrow hawk, stockdove, turtledove, hobby falcon, thick-knee, rareen, sanderling, carrion crow, crested lapwing, golden oriole, common starling, ringed plover, golden plover, redwing, turnstone, common thrush, blackstock, greater pettychaps, common heron, common wren, little heron or bittern, common bittern, pied wagtail, skylark, night heron, greenfinch or grosbeak, white spoonbill, common sparrow, black-tailed godwit, cuckoo, common curlew, African plantain-eater, whimbrel, hoopoe, ruff, bee-eater, pigmy curlew, kingfisher, dunlin, house martin, knot, chimney swallow, sandpiper, bank martin, greenshank, European goatsucker, common snipe, great or solitary snipe, kittiwake, Baillon's crake, skua, land-rail or corncrake, northern diver, Allen's porphyrio, gannet or solan goose, gallinule or water hen, coot, bean goose, widgeon, white petrel, Pacific petrel, stormy petrel, short-beaked petrel, teal, black tern, roseate tern. Most of the stragglers come from the African coast.

TELEGRAPH AND TELEPHONE.

This island has a circuit of 250 kilometers of telegraph lines, which are owned and controlled by the General Government in connection with the post-office department. All business that anyone may wish to do over the wires must be done through the post-office. Charges for messages, irrespective of distance, are 10 reis* per word, whether great or small; there is an additional charge of 50 reis for every message.

Telephones in this city and outlying districts are owned by private individuals. Whether they pay a tax on them or not, I do not know.

SUBMARINE CABLES.

I am indebted to E. G. Lawson, esq., superintendent of the Brazilian Submarine Company's office at this station, for the following:

The first cable was laid in 1874 from Lisbon to this place. Its length is 626 knots. This was continued from this place to St. Vincent, 1,198 knots, and from St. Vincent to Pernambuco, 1,845 knots.

The second cable was laid in 1884 from Lisbon to this place. Its length is 627 knots. It was continued to St. Vincent, 1,168 knots; from St. Vincent to Pernambuco, 1,862 knots; and from St. Vincent to the Cape of Good Hope.

The following are the charges per word: To Portugal, 186 reis; England, 342 reis; New York, 600 reis; Germany, 468 reis; France, 444 reis.

EARTHQUAKES.

Slight shocks of earthquake are occasionally experienced here. The violent shock on the night of March 31, 1748, injured to some extent the central pillars in the interior of the cathedral. The great earthquake which destroyed Lisbon on November 1, 1755, was severely felt here two hours later, shaking doors and windows, and in an hour or more the sea rose 15 feet above the high-water mark and immediately sank again. This alternate rising and falling occurred four times, after which the sea returned to its normal state, having done great damage in the lower part of the city. A violent shock was experienced in 1816, which cracked the ceilings in the houses, and threw some people out of their beds. The same shock was felt at the

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* 1 milreis of 1,000 reis=$1.08.

Azores and Lisbon, not, however, with the same violence. Several slight shocks have occurred since, a slight tremor three years ago.

MOUNTAIN SCENERY AND COASTING STEAMER.

The mountain scenery of Madeira is fine. It is wild and picturesque in the extreme. One of the great amusements of visitors and health-seekers is riding on horseback and in the hammock into the Grand Curral Ribeiro Frio, enjoying its many wild and enchanting scenes. I have met travelers here who say that nowhere else have they met such wild and beautiful scenes as on the north coast of this island. One of them, called the "black woman," is a peculiar rock formation at Porto Moniz. It stands in the water and is 145 feet high. It has the appearance of a woman with a child in her arms and apparently her daughter standing in front of her.

JOHN F. HEALY,
Consul.

UNITED STATES CONSULATE,
Funchal, November 30, 1892.

AMERICAN TIMBER IN AUSTRALIA.

REPORT BY CONSUL-GENERAL WALLACE, OF MELBOURNE.

The large influx of population flowing into Australia, dating as far back as 1852, and following the discovery of rich deposits of gold, developed an extraordinary demand for building material. As the timber indigenous to Australia is hard wood and not well adapted for building or joinery, its place was supplied by the importation of Swedish deals, flooring, clapboards, and square timber. At first the trade was entirely in the hands of English houses, but American firms soon entered into competition, bringing ready-made sash and doors and lumber of the usual sizes and grades from the eastern coast of the United States and Canada. This lumber was followed by pitch pine, which in its turn has had to give place to lumber from Puget Sound.

What is known to the trade as "Oregon" has become a standard building timber, and the demand for it will keep pace with whatever building or improvement is done in the colonies. This is shown by the importations into the colony of Victoria during the past seven years, the greatest period of building and improvement the colony has ever known. The importations of Oregon, which amounted in 1886 to 31,341,179 superficial feet, rose to 55,487,694 superficial feet in 1888, but has since declined to 12,000,000 superficial feet in 1892; and it is estimated that there are in importers' and trade hands about 12,000,000 superficial feet, which, with from 3,000,000 to 5,000,000 feet afloat, will furnish a full supply for twelve months or more to come, as the normal consumption is not more than that amount per annum. It is the opinion of the trade generally that "the demand for timber in the near future must be comparatively small, as it can not well recover quickly from the severe blows dealt it by the collapse of building societies and the bursting of the land boom."

The kinds of timber imported into the colony of Victoria from the western coast of America are Oregon, sugar pine, redwood, and spruce. Oregon is principally used for the rough and heavy work in building, bridge work, etc. In former years this timber arrived in good condition and was of good quality, but latterly complaints have been made under both counts, and more care should be taken in loading and sorting at the port of shipment. Sugar pine, which is used mainly in the manufacture of doors, fittings, and for the better class of general joiners' work, is gradually growing more and more into favor with architects, to the detriment of Michigan clear pine, which has been used almost exclusively for this kind of work for so many years. The average annual consumption of the past few years was about 2,000,000 superficial feet, but, for the same reason as Oregon has decreased, this average is far from being maintained at the present time. The stock on hand is about 1,500,000 superficial feet. Redwood supplies the wants of the cheaper class of cabinetwork, fittings, etc. Of this timber the usual annual consumption is about 1,250,000 superficial feet, and the estimated stock on hand is about 1,000,000 feet. Spruce from Puget Sound is also imported; but the last shipment was sold as Oregon. The supply can be obtained from St. Johns of a better quality and at cheaper rates. The present market quotations are very much below what they would be if there was a demand.

The present freights ruling from Puget Sound to this market are 37*s.* 6*d.* to 40*s.* ($9 to $9.60), and we are given to understand they are not satisfactory to shipowners.

The market price for Oregon is disappointing and must occasion a loss of fully 25 per cent on all cargoes properly stacked, stored, and duty paid.

The latest market quotations per 1,000 feet are as follows:

Description.	Price.				
	£.	s.	£.	s.	
Oregon:					
New stock	4	10 to	5	0	$21.89 to $24.33
Old stock	4	0 to	4	10	19.46 to 21.89
Redwood			9	0	43.79
Sugar pine	7	0 to	10	0	34.06 to 48.66
Native hard wood (red gum, etc)	4	0 to	5	0	19.46 to 24.33
Kauri pine (New Zealand)	7	0 to	8	0	34.06 to 38.93
Swedish red deals	7	0 to	8	0	34.06 to 38.93

Late auction sales of Oregon new stock were at £4 10*s.*

The future importations of timber into this colony may be affected somewhat by the customs duties, which were finally settled by parliament on the 26th of October upon the following basis: Under 7 by 2½, 5*s.* ($1.20) per 100 superficial feet; under 12 by 6, 2*s.* 6*d.* (60 cents) per 100 superficial feet; sizes 12 by 6 and over, 1*s.* 6*d.* (36 cents) per 100 superficial feet; logs (rough or undressed, any size), free.

There is a possibility of other classes of timber, which are not in the original Government proposals, being taxed later on. The duties on imports into the colony take effect immediately upon being proposed by the Government.

The imports into the colony of Victoria for the past six years are given in the trade publications as follows:

Table showing the imports of lumber into Victoria from 1886 to 1892.

Year.	Flooring, lining, and weather-boards.	Red deals.	Spruce and white deals.	Kauri pine.	Red and white pine.	Cedar.
Baltic, United Kingdom, and Canada.	*Sup. feet.*	*Sup. feet.*	*Sup. feet.*	*Sup. feet.*	*Sup. feet.*	*Sup. feet.*
1886	54,135,023	24,026,436	3,755,499	....	....	....
1887	26,405,838	17,259,012	762,795	....	....	....
1888	51,052,077	22,063,392	2,589,675	....	....	....
1889	49,960,908	25,118,280	3,006,263	....	....	....
1890	56,743,271	28,072,319	2,354,118	....	....	....
1891	36,367,258	10,039,821	3,268,213	....	....	....
1892*	18,675,389	1,297,471	1,580,933	....	....	....
Colonial.						
1886	....	....	....	8,951,118	90,000	3,849,577
1887	....	....	....	7,888,104	531,300	2,921,141
1888	....	....	....	14,493,927	2,866,581	2,159,183
1889	....	....	....	15,551,906	529,900	1,401,232
1890	....	....	....	12,914,750	715,727	1,255,753
1891	....	....	....	13,845,346	1,723,684	989,936
1892*	....	....	....	5,212,993	1,513,931	854,231
United States and Canada (west coast).						
1886	31,341,179	955,779	(†)	2,481,066	4,068,327	402,150
1887	24,515,087	1,273,590	(†)	2,098,444	2,841,690	450,030
1888	55,487,694	1,431,957	(†)	3,973,558	4,861,419	468,450
1889	35,220,629	1,376,109	(†)	4,939,101	5,332,382	380,814
1890	35,426,131	1,767,797	2,508,933	1,173,208	3,337,429	189,933
1891	20,337,733	816,857	2,979,910	1,478,266	3,726,476	244,894
1892*	11,935,658	1,286,356	1,680,570	628,881	1,982,560	134,064

* To October 27. † Included in clear pine.

Table showing the imports of laths, pickets, and doors into Victoria from the United States, Canada, and the Baltic from 1886 to 1892.

Year.	Laths.	Pickets.	Doors.
	Bundles.	*Bundles.*	*Number.*
1886	167,342	158,397	16,457
1887	122,202	116,255	6,627
1888	132,175	202,400	9,774
1889	97,622	194,832	1,563
1890	86,503	156,325	1,182
1891	51,721	53,800	308
1892	15,177	43,844	1,760

The above information shows that there is no discrimination or sentiment in this market against American timber, and the decline in trade and the reduction of imports is due wholly to the financial depression existing here at this time. On the return of prosperity there will be an immediate demand for such stock.

I have been greatly indebted to the trade, particularly to Messrs. John Sharp & Sons, Samuel Hughes & Co., C. S. Ross & Co., and Fraser & Co. (limited), timber brokers, etc., for information and statistics.

GEO. H. WALLACE,
Consul-General.

UNITED STATES CONSULATE-GENERAL,
Melbourne, December 15, 1892.

COMMERCE OF MARACAIBO IN 1892.

REPORT BY CONSUL PLUMACHER.

COFFEE.

There has been a great decrease in the amount of this staple shipped to the United States, although the production has augmented greatly. The reason for this diminution will be dwelt upon in detail below. In 1891 the total amount declared in the consulate reached the high figure of 43,118,760 pounds, of an invoice value of $7,874,506.31 (gold), while during the year just closed the United States received but 33,214,766 pounds, of a declared value of $6,014,721.73.

The year has been an exceptionally good one as regards both production and price, and the gains of the large exporting houses have been unusually satisfactory. The partial failure of the Java crop, while affecting but slightly the coffee market in the United States, influences to a great degree prices in Europe, where various grades of Maracaibo coffee, which were there formerly almost unknown, are now eagerly sought for on account of their resemblance to the Java product, and for that reason command far higher prices than rule at present in the United States.

CACAO.

During 1892 there were exported to the United States 89,343 pounds of cacao, being 6,415 pounds more than in the previous year. Prices, unfortunately, however, were not sustained, the declared value of the lesser amount in 1891 being $3,434.45 greater than the value of the larger quantity exported in 1892. This is not encouraging for the planters of this product, and is to be greatly regretted, as a large and increasing cultivation of cacao would go far toward releasing the agriculturists from their injudicious dependence upon one staple, as is practically the case in Venezuela to-day.

HIDES AND SKINS.

In hides there has been a great falling off, for reasons to be subsequently explained, as in the case of coffee. There were 671,134 pounds shipped to New York in 1891 and in 1892 only 211,106 pounds, the latter having an invoice value of $18,560.54, against $70,477.82 in the preceding year. The decrease in the exportations of skins has not been so marked, although 32,188 pounds were shipped in 1891 over the quantity recorded during the past year, which amounted to 162,887 pounds, valued at $37,072.14.

There is never much fluctuation in the value of hides and skins, prices remaining practically almost the same from year to year.

FISH SOUNDS.

The recent war, more than anything else, is responsible for the considerable decrease in the quantity of fish sounds exported to the United States. In 1892 but 32,326 pounds were exported, as against 54,943 pounds in 1891, values for the two years being $19,112.97 and $9,580.64, respectively.

DIVI-DIVI.

Although but very few sailing vessels from the United States have touched at Maracaibo during the past year, yet the shipments of divi-divi have increased, as it is now occasionally sent in bags by the steamers of the "Red D" line. During 1892 the exportations amounted to 232,789 pounds and in 1891 to 153,702 pounds. It is but comparatively recently that our tanneries have begun to experiment with this product, which is very rich in tannin, although inferior, no doubt, to our best oak bark.

WOODS.

In consequence of the small number of American sailing vessels, the exports of woods to the United States have suffered quite a diminution, as in 1892 the declared value of all classes shipped amounted to $15,467.05, while during the previous year they had risen to $24,098.08.

A noticeable fact is that in 1892 there were absolutely no shipments whatever of fustic to the United States; for many years this has not happened. In 1891 this dyewood was exported to New York to the value of $14,832.26, which is almost equal to the value of all classes shipped in 1892, among which figure boxwood, cedar, ebony, mahogany, lignum-vitæ, etc.

TRADE WITH THE UNITED STATES AND EUROPE.

On the whole, trade generally has prospered during the past year very fairly, and even wonderfully well when it is considered that for many months Venezuela was the scene of a devastating and sanguinary fratricidal conflict. Maracaibo, and, indeed, the entire State of Zulia, were fortunately outside the zone of active hostilities; but in other sections of this consular district, and especially in the coffee-growing region of Los Andes, the war in its beginning raged with great fury, although the revolutionary movement was suppressed in that section in the course of a few months, only to break out, however, and be carried to a successful conclusion in other localities.

The amount of coffee exported from Maracaibo was no doubt affected by the disturbed state of the country, but this was not the chief reason of the diminished shipments to the United States.

After the 15th of March last, at which period the imposition of duties upon Venezuelan products imported into the United States took effect, the large exporting houses of Maracaibo, controlled chiefly by Germans, began to seek a market for their coffee in Europe. Previous to this the United

States had enjoyed a practical monopoly in the reception, not only of the coffee shipped from this port, but also of the hides and skins, which formed important items of commerce. This monopoly of Maracaibo exports by the United States naturally gave our exporters at home great advantages in their endeavors to increase their sales to this country, and for the past few years a most gratifying success had attended their efforts, American merchandise of all descriptions becoming more and more appreciated and in greater demand, until it really seemed that we were at last to be the winners in the commercial contest between the New World and the Old for the control of trade in this section of South America. Unfortunately, however, when the first experimental shipments were made to Hamburg, instead of to New York, in order to avoid payment of the recently imposed duties in the United States, circumstances were such as to favor greatly this new departure.

Maracaibo coffee (at least certain grades) is of a special quality and appearance, resembling to a great extent the Java coffee, which is so highly esteemed in Europe; and it so happened that the recent scarcity of the Java product coincided with the appearance in Hamburg of large quantities of Maracaibo coffee, diverted from the usual market at New York by the imposition of import duties. This coffee was quickly sold at advanced prices, and further requisitions made upon Maracaibo by the Hamburg merchants, who even commenced to build vessels especially for this trade, the pioneer of which, the bark *Maracaibo*, is now on her home voyage with 8,000 bags of coffee, having brought out a full cargo of European merchandise.

The Germans now seem sanguine that they will be able to secure and monopolize this trade, and also hope to reap corresponding advantages in increasing their exports to this country. It is yet to be seen whether all their anticipations will be realized; but it is at least a positive fact that the current of export from Maracaibo, not only in coffee, but also in the important items of hides and skins, has been diverted from New York to Hamburg, Havre, and other points on the continent of Europe. It will also be noted that, besides the large amount of coffee now being shipped directly to Europe without passing through the United States, the greater part of that invoiced to New York during the last three quarters of 1892 was either absolutely in transit for foreign ports or marked with option to be so transshipped. For example, during the December quarter there were fifty-four invoices in transit and a larger number optional.

It may be roughly calculated that of the coffee shipped to the United States during the past year, invoiced at a value of $6,014,721.73 and amounting to 33,214,766 pounds, at least two-thirds was in transit, either absolutely or with option, and I have reason to believe that of the latter category by far the greater part finally found its way abroad.

E. H. PLUMACHER,
Consul.

UNITED STATES CONSULATE,
Maracaibo, January 6, 1893.

MANCHESTER-AMERICAN TRADE.

REPORT BY CONSUL GRINNELL.

Table showing the value of declared exports from the consular district of Manchester to the United States during the year 1892.

Articles.	Quarter ended—				Total.
	March 31.	June 30.	September 30.	December 31.	
Buttons	$1,761.89	$1,347.49	$1,950.86	$2,194.70	$7,254.94
Card clothing	15,455.17	29,814.25	41,115.13	25,621.60	112,006.15
Carpets and rugs	49,970.27	16,667.72	45,180.60	36,850.99	148,669.58
Cattle hair and other hair		9,852.21	14,211.14	27,962.40	52,025.75
Chemicals	147,843.13	142,266.74	185,534.11	151,694.47	627,338.45
Cotton, raw				12,022.95	12,022.95
Cotton, worsted, and worsted stuffs	40,836.55	50,337.57	72,582.28	71,911.68	235,668.08
Cotton piece goods	800,032.85	347,880.41	384,567.22	823,897.70	2,356,378.18
Cotton velvet, fustians, etc.	285,080.54	453,430.89	458,828.07	327,971.10	1,525,310.60
Cotton yarn and thread	119,668.51	122,835.89	124,130.68	117,528.08	484,163.16
Curtains, laces, etc	107,145.89	106,107.87	116,466.28	127,370.99	457,091.03
Damasks, etc	91,937.82	102,998.98	145,080.16	161,254.92	501,271.88
Elastic web and India-rubber thread	41,795.08	19,259.11	26,242.99	32,718.70	120,115.88
Felt hats	21,742,89	2,707.16	22,877.76	7,074.70	54,402.51
Furs and seals		9,695.82	850.60		10,546.42
Handkerchiefs	109,113.85	135,744.17	217,484.69	161,288.09	623,630.80
Hosiery	34,148.47	28,339.64	55,670.09	21,239.48	139,397.68
Iron, steel, etc	53,788.76	52,885.79	62,478.65	52,473.94	221,627.14
Leather and hides	43,240.61	34,992.72	30,982.30	26,596.98	135,812.61
Linens	176,202.86	151,979.74	160,560.19	140,442.37	629,185.16
Machinery	346,814.69	383,953.02	700,200.04	612,583.68	2,043,551.43
Miscellaneous	44,364.37	29,738.12	45,734.86	32,953.31	152,790.66
Musical instruments	1,185.36				1,185.36
Paper, paper hangings, etc	37,258.86	43,178.98	29,643.96	45,938.11	156,019.91
Quilts	24,654.58	7,416.89	31,557.33	22,555.88	86,184.68
Rags, paper stock, etc	218,490.25	189,574.69	187,118.21	215,436.12	810,619.27
Shawls, etc	18,032.20	30,359.48	62,692.22	5,029.72	116,113.62
Silk and cotton piece goods	6,604.59	3,856.17	10,563.15	7,509.44	28,533.35
Silk noils and waste	14,340.68	25,319.28	14,548.94	18,067.81	72,276.71
Silk seals, plushes, etc	2,222.01	4,014.16	14,986.61	9,611.91	30,834.69
Silk yarn	102,581.15	78,549.14	62,875.02	99,189.41	343,194.72
Tape, braid, etc	28,892.92	35,902.04	103,178.81	86,836.67	254,810.44
Towels	44,467.05	42,892.94	65,846.68	68,330.36	221,537.03
Waterproof garments	4,198.14	7,584.12	11,331.50	6,514.03	29,627.79
Manufactures of wool, as wet felts, blanketing, lapping, etc.	75,202.23	28,801.57	39,659.58	29,006.55	172,669.93
Worsted yarn		73.00	1,840.88	892.66	2,806.54
Other yarn	2,517.03	5,233.48	3,740.30	3,831.99	15,322.80
Total	3,111,591.25	2,735,691.25	3,552,311.89	3,592,403.49	12,991,997.88
Total in 1891	3,507,800.85	1,731,892.71	2,702,303.09	2,879,655.17	11,821,651.82

WILLIAM F. GRINNELL,
Consul.

UNITED STATES CONSULATE,
Manchester, January 9, 1893.

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